

Vernal City

Transportation Master Plan



FINAL REPORT
December 15, 2004

Prepared By
UDOT Planning Section
4501 South 2700 West
Salt Lake City, Utah 84114-3600

Vernal City

Transportation Master Plan

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1. Introduction

1.1. Background

The City of Vernal has a vision for itself. “Vernal will be a neat, clean community with quality employment opportunities, and which recognizes its historical and cultural heritage. Vernal will provide excellent community services and be the economic, recreation, educational and cultural hub of Northeastern Utah.” The City of Vernal is the county seat and the largest city in Uintah County, which has three incorporated towns and cities. The City of Vernal is located approximately 25 miles due west of the Colorado border and 175 miles east of Salt Lake City.

Vernal is located in Ashley Valley, named for General Ashley who visited in 1825, in the Uintah Basin. The first known settlers in Ashley Valley were the Dodds in 1876. The first people believed to live in the area of present day Vernal were the Hatch family. The area is rich in history and culture. Vernal City and the surrounding area have large deposits of petroleum and gas products. The City has seen many large booms due to the extraction of these highly sought products. Currently, a growing interest of oil extraction from oil shale and tar sands in the area has expanded interest by extraction companies in Vernal and its surrounding areas.



US-40/Main Street in Vernal

The Uintah Basin and Vernal enjoy a variety of recreation opportunities. The Professional Rodeo and Cowboy Association (PRCA) holds one of its top rodeos, the Dinosaur Roundup Rodeo, in Vernal every year. Vernal is located about 40 miles south of Flaming Gorge National Recreation Area. Flaming Gorge is renowned for its year-round fishing and its summer recreation activities such as rafting, boating and water skiing. The area around Vernal has many scenic places for backpacking as well. One of the more famous attractions, just a few miles east of Vernal, is the

Dinosaur National Monument. This area has more than just dinosaur bones. It also has great hiking, rafting and camping possibilities. Most recently, Vernal has received national recognition for its abundant and beautiful flower displays along US 40 (Main Street) from the national non-profit organization “America in Bloom”.

The State transportation system includes US Highways 40 and 191, State Routes (SR) 121, and 45. US-40 and US-191 share the same route entering Vernal from the southwest. US-191 turns north and leads to the Flaming Gorge area in Vernal. US-40 continues through Vernal and turns south through Naples, until heading east to Dinosaur National Monument and Colorado. SR-121 enters Vernal from the west, through Maeser. It ends at US-40 in Vernal. SR-45 starts in the southern end of Naples and heads south to Bonanza.

Vernal receives a large amount of tourist traffic due to its location near Flaming Gorge and Dinosaur National Monument and, because of its noted popularity as Dinosaurland and the recently opened Utah Field House of Natural History, fondly known as “The Dinosaur Museum”.

Most tourist travel is along US-40 and US-191. Much of the circulation on City streets is on 100 North and 100 South between 900 West and 500 East. Another road with high volumes is 500 South. 500 South is classified as a collector by the federal standards. There is concern about traffic in the areas of the Junior High, the High School, and the Park and Recreation facilities.

1.2. Study Need

The City of Vernal has seen a 16.1% population increase between 1990 and 2000. From 1970 to 1980, due to the large mineral boom, the population increase was 83.8%. Continued population increases are anticipated due to the increased interest in oil and gas development. This, combined with the increased tourist and recreational trips traveling to and through Vernal, culminates in a heightened awareness of the importance of having a well-established transportation master plan incorporated into this updated General Plan.

During this transportation review, some of the major transportation issues in Vernal City are identified are as follows:

- Motorist Safety
- Pedestrian Safety
- Bicyclist Safety
- Parking
- Signals
- City gateway aesthetics
- Internal circulation (mobility)
- Property access
- Truck traffic
- Speed limits

1.3. Study Purpose

The purpose of this study is to develop a transportation master plan for Vernal City and evaluate the influence of the plan on the surrounding communities. This plan will be adopted by Vernal City as part of the City’s General Plan. With the transportation master plan in place, the City may qualify for grant preference from the Utah State Quality Growth Commission.

The primary objective of the study is to establish a solid transportation master plan to guide future developments and roadway expenditures. The plan includes two major components:

- Short-range action plan
- Long-range transportation plan

Short-range improvements focus on specific projects to improve deficiencies in the existing transportation system. The long-range plan will identify those projects that require significant advance planning and funding to implement and are needed to accommodate future traffic demand within the study area.

1.4. Study Area

The study area includes Vernal City, the City of Naples, the airport and land adjacent to it that is in the County inside the Small Urban Boundary of 2003. A general location map is shown in Figure 1. A more detailed map of the study area and City limits is shown in Figure 2. The study area was developed by Vernal City and accepted by the Vernal City Transportation Master Plan Technical Advisory Committee February 25, 2004.

The roadway network within the study area includes US-40, US-191, SR-121, and SR-45. Each of these roads provides the vital function of connecting Vernal City and Naples to the rest of Uintah County and the State. US-40/191 is the largest north/south and east/west link from the study area to places such as Salt Lake City and the recreation areas around the study area and Colorado. SR-121 links the study area to points west in Uintah County and central eastern Duchesne County. SR-45 links the study area to the southeastern portion of Uintah County. Other local, City and county roads connect the study area to other portions of Uintah County and the rest of the Uintah Basin.

Figure 1: Vernal Study Area Location

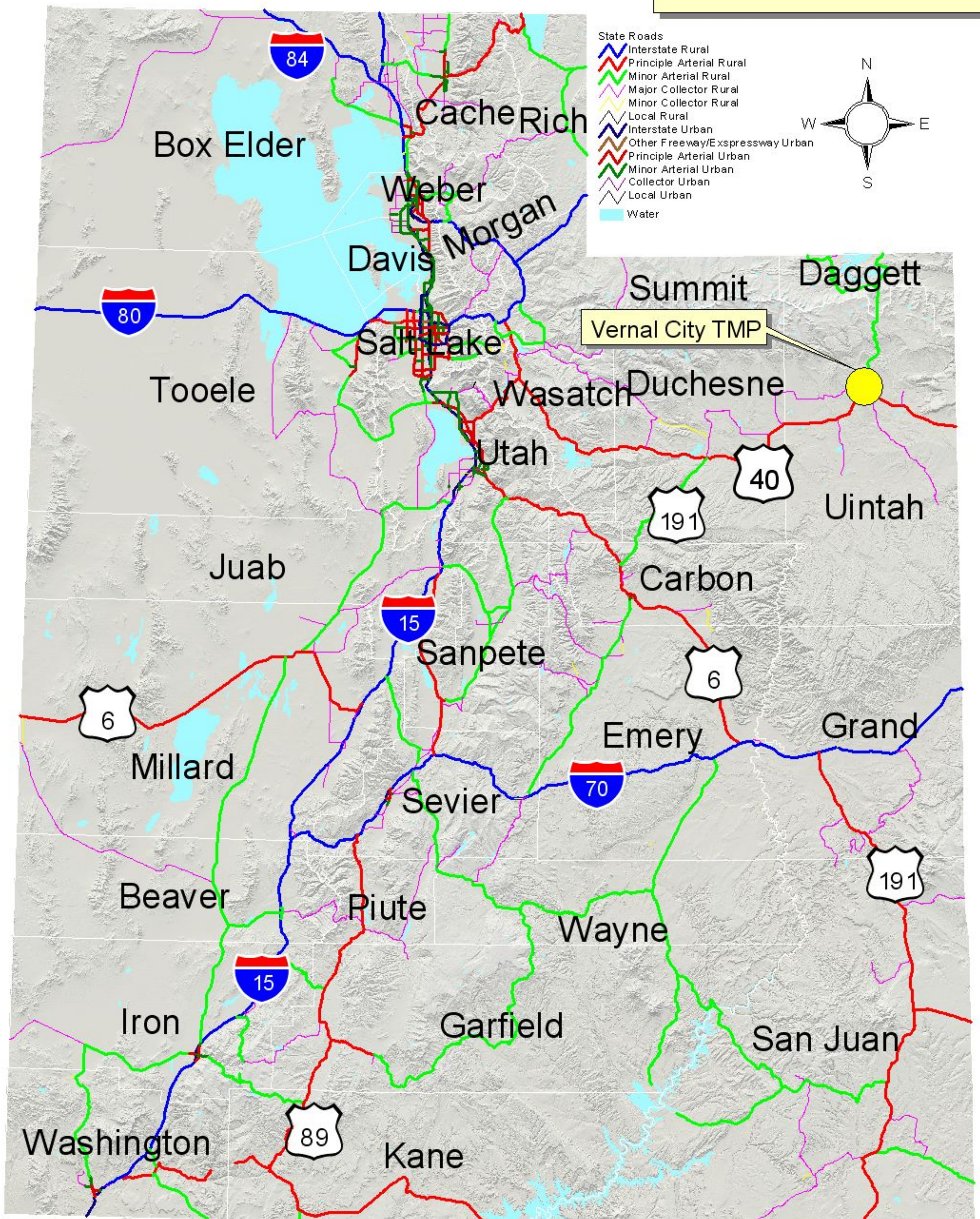
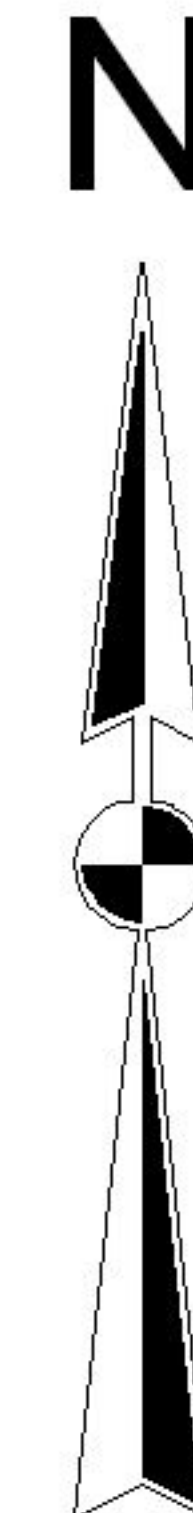
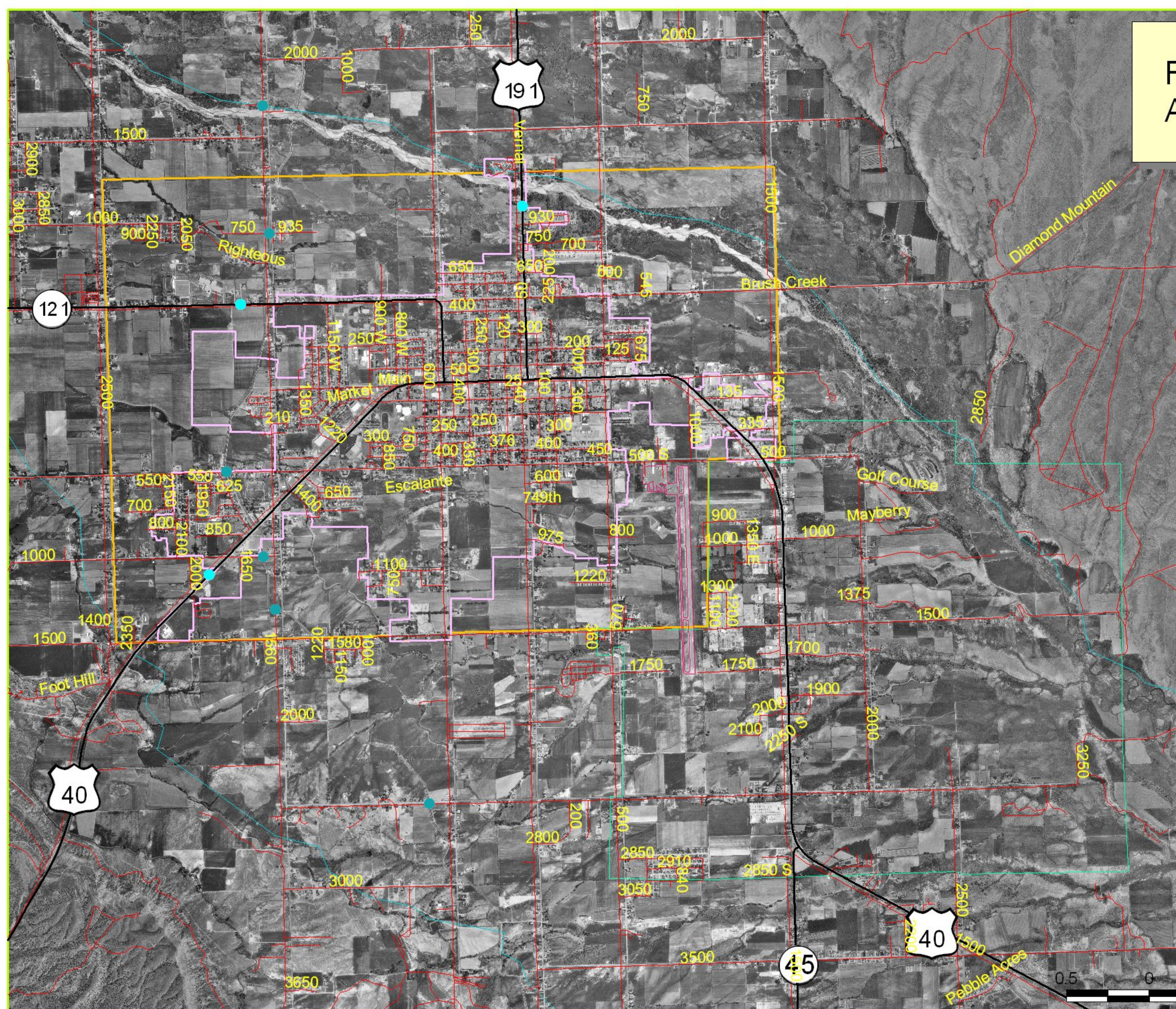


Figure 2: Vernal Study Area Vicinity



- City/County Bridges
- State System Bridges
- Airport
- State Roads
- Local Roads
- City Boundaries
- Vernal
- Naples
- 2003 Urban Boundary
- Study Boundary
- Water Courses



1.5. Study Process

The study, which began in December 2003, is being administered and financed by the UDOT Planning Section. It is being conducted under the guidance of Vernal Area Planning, Zoning, City Officials and Vernal residents. This group will be referred to as the Technical Advisory Committee, or “TAC” for this document. The nineteen TAC members are listed below:

Shirley Wilkins	Zoning Board, Vernal City
Troy Ostler	CIVCO Engineering
Bill Johnson	Uintah County -Vernal City Economic Development
Allan Mashburn	Vernal City
Russ Vernon	Engineering Services Inc.
Daren Anderson	Engineering Services Inc.
Richard Harrington	Chamber of Commerce, Vernal City
William J. Kremin	Mayor, Vernal City
John Parker	Vernal City Council
Jerry Haskall	Deseret Power
Gordon Seitz	Vernal City Planning & Zoning
David Haslem	Commissioner, Uintah County
Niles Mott	Mayor, Naples
Rod Thurgood	UDOT Maintenance Station Supervisor
Jim Abegglen	Commissioner, Uintah County
Glade Allred	Street Supervisor, Vernal City
Ed Zurbuchan	Vernal City
Dale D. Bowden	Naples City Council
Ken Bassett	Vernal City Manager

The study process for the Vernal City Transportation Master Plan is depicted in Figure 3.



Members of the TAC prepare to prioritize projects.

Three basic parts of the process are:

(1) inventory and analyze existing conditions, (2) establish future conditions, and (3) develop the transportation plans. The goal of this process is to identify needs, opportunities, and constraints for establishing and implementing transportation plans. This process involves the participation of the TAC for guidance, review, evaluation and recommendations in developing the transportation plans.

The first component of the study process evaluates existing traffic, infrastructure, population, and employment conditions. Evaluation of existing conditions provides a basis for the analysis of future conditions. The second component of the study process forecasts the future development of Vernal City. Population and employment forecasts have been

developed for the two planning horizon years. The location and concept of projects are developed by the TAC.

The TAC evaluates each part of the study process. Their comments are incorporated into the study's draft final report. The remainder of the draft final report will focus on the recommendation and implementation portion of the transportation plan program. Transportation projects that are recommended for the short-term and long-range needs are developed based on the TAC's recommendations and concurrence.

The schedule presented in Figure 3 outlines the time line of the elements of the study process that are required for the completion of the document.

The study process allows for the solicitation of input from the public at two evening public workshops. This public participation element is included in the study process to ensure that any decisions made regarding this study are acceptable to the community.

The public participation portion of this study is planned to occur at two stages during the development of the final report. The first public workshop is conducted after the inventory and analysis of existing conditions is performed and preliminary transportation improvements identified. The second public workshop is conducted after the future conditions have been analyzed and transportation plans have been conceptualized.

Comments on issues received from the two public workshops are recorded and discussed with the TAC. The TAC then prioritizes those comments that are incorporated into the report. The draft final report and the final report are submitted to the TAC for approval.

Upon TAC approval of the draft report, the UDOT Planning Section will prepare and submit the final report to the Mayor and City Council of Vernal City for approval. The final report describes the study process, findings and conclusions, and documents the analysis of the recommended transportation system projects and improvements.

Figure 3. Project Schedule

TASK	Preliminary	Initial Public Input	Refine Ideas and Concepts	Finalize Document	Plan Adoption /Follow Through
Preliminary Data Gathering					
First Public Open House					
First Meeting					
Update Document					
Second Open House					
Second Meeting					
Finalize Document					
Document Delivery					
Plan Adoption					
Follow Through					

2. Existing Conditions

An inventory and evaluation of existing conditions within the study area was conducted so that existing transportation problems could be identified and a framework for the analysis of future conditions could be accomplished. The results of the inventory and evaluation follow.

2.1. Land Use

In order to analyze and forecast traffic volumes, it is essential to understand the land use patterns within the study area. The City land use is described in the following paragraphs.

The Vernal City General Plan outlines where each of the zones are and how the City will grow in the future. The largest section of low-density residential zoning is in the south part of Vernal. The second largest low density residential zone is on the west side of Vernal. Most of the commercial zoning is along the State Routes. The industrial and commercial/industrial zones are both on the east side of Vernal.

The rest of the zoning can be seen in the Vernal City General Plan. Most of the trips will be generated by businesses and then by housing units. These zones will be where the highest traffic is generated.

2.2 Enhancements

In 1984 community leaders in the Vernal Area Chamber of Commerce and several service groups in Vernal combined efforts to revitalize the central downtown area of the City along US 40 via a floral beautification project that now has become nationally renown. Over 1200 planters and 100 hanging baskets now adorn the Main Street (US 40) corridor, creating a colorful and nationally award winning floral impact. All flowers are maintained by Vernal City. This exceptional community based effort to enhance a federal highway/Main Street continues to draw accolades and as a result, Vernal City is presently seeking Utah Federal Highway Enhancement Funding for the expansion of the beautification effort to include 60 additional decorative street lights as well as over 300 additional planters and flower baskets.

2.3 Environmental

In Utah there are a variety of local environmental issues. Each of the cities and counties need to look at what the environmental issues are in their areas on a case-by-case issue. There are many resources that can help local entities to determine what issues need to be addressed and how any problems that may exist can be resolved.

Some of the environmental concerns around the State are wetlands, endangered species, archeological sites, and geological sites among other issues. Environmental concerns should be addressed when looking at an area for any type of improvement to the transportation system. Specific issues for Vernal City will not be discussed here, as they are more related to specific projects as they are built.

2.4. Socio-Economic (Data from Census Brief: Cities and Counties of Utah, May 2001)

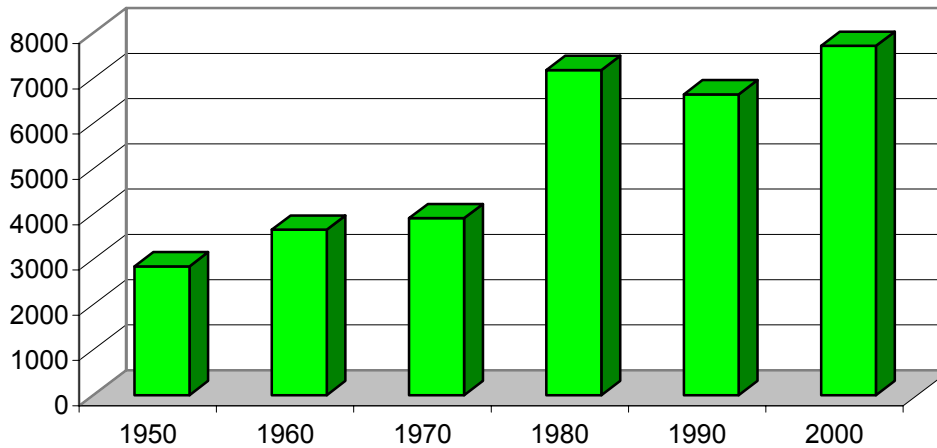
Vernal ranks 45th population in the State of Utah, out of 235 incorporated cities and towns. Historical growth rates have been identified for this study, because past growth is usually a good indicator of what might occur in the future. Figure 4 identifies the population growth over the past 50 years for the State of Utah, Uintah County and Vernal City. Figure 5 identifies that population change in Vernal City has ranged from -7.5% in one decade to gaining 83.8% between 1970 and 1980, while growth in the State has gained between 18 and 38 percent decennially during the past 50 years.

Figure 4. Population Data

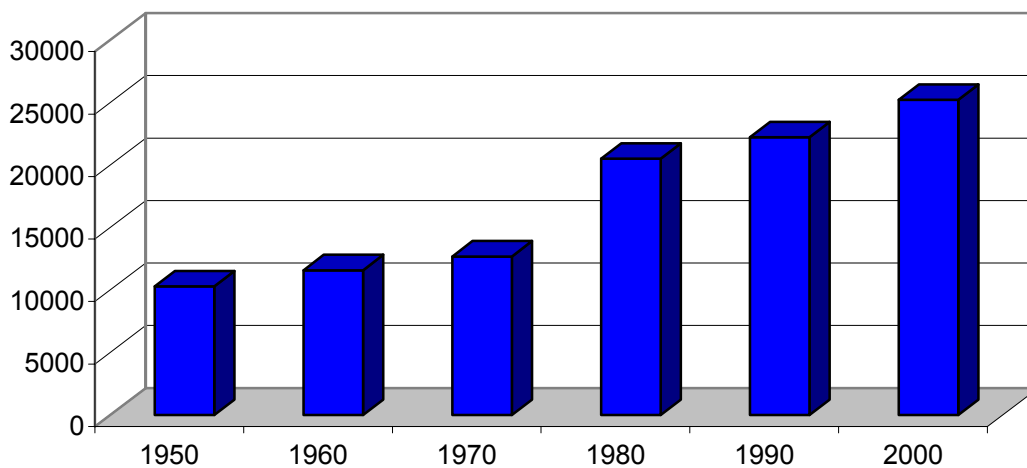
Population

Year	State of Utah	Uintah County	Vernal City
1950	688,862	10,300	2,845
1960	890,627	11,582	3,655
1970	1,059,273	12,684	3,908
1980	1,461,037	20,506	7,181
1990	1,722,850	22,211	6,644
2000	2,233,169	25,224	7,714

Vernal City Population



Uintah County Population



Source: U.S. Bureau of the Census

<http://www.governor.utah.gov/dea/OtherPublications.html>

Figure 5 identifies population growth rates for the State of Utah and Uintah County on a decennial basis from 1950 to 2000. Though the State population and the Uintah County have grown every decade from 1950 until 2000, Vernal City had one decade of a small decline in population. Even with the small decline, from 1970 until 2000, Vernal City has almost doubled in population.

Vernal City has some unique demographic characteristics when compared with the State, particularly with age and race demographics. In the 25 to 54-age category, the State is at 38.6%, the County is at 37.1% and the City is at 35.1%. For the 65+-age category, the State is at 8.5%, the County is at 9.9% and the City is at almost 12.3%. The State's median age is 27.1 years, the County's median age is 29.0 years, and the City's median age is 28.3 years. The race demographics show a trend that is also different from the State. The State has a smaller Non-Hispanic/White population percentage, 85.3%, compared to the County at 85.9%, and to Vernal City at 91.8%. Uintah County is more typical of the more rural parts of the State, which tends to have a smaller minority population. Another interesting statistic is that of Veteran status with the State at 10.7%, County at 12.9%, and Vernal City at 13.7%.

The 2000 median household income in Vernal City is \$30,357, compared to the State median household income of \$45,726.

The unemployment rate in Vernal City was 3.9 percent in 2000. Vernal has had wider fluctuations than the State, but the average is about even with State growth. According to the Utah Department of Employment Security (UDES), in 2000 there were approximately 3,548 employees working in Vernal City, which is 31.83 percent of Uintah County's total labor force.

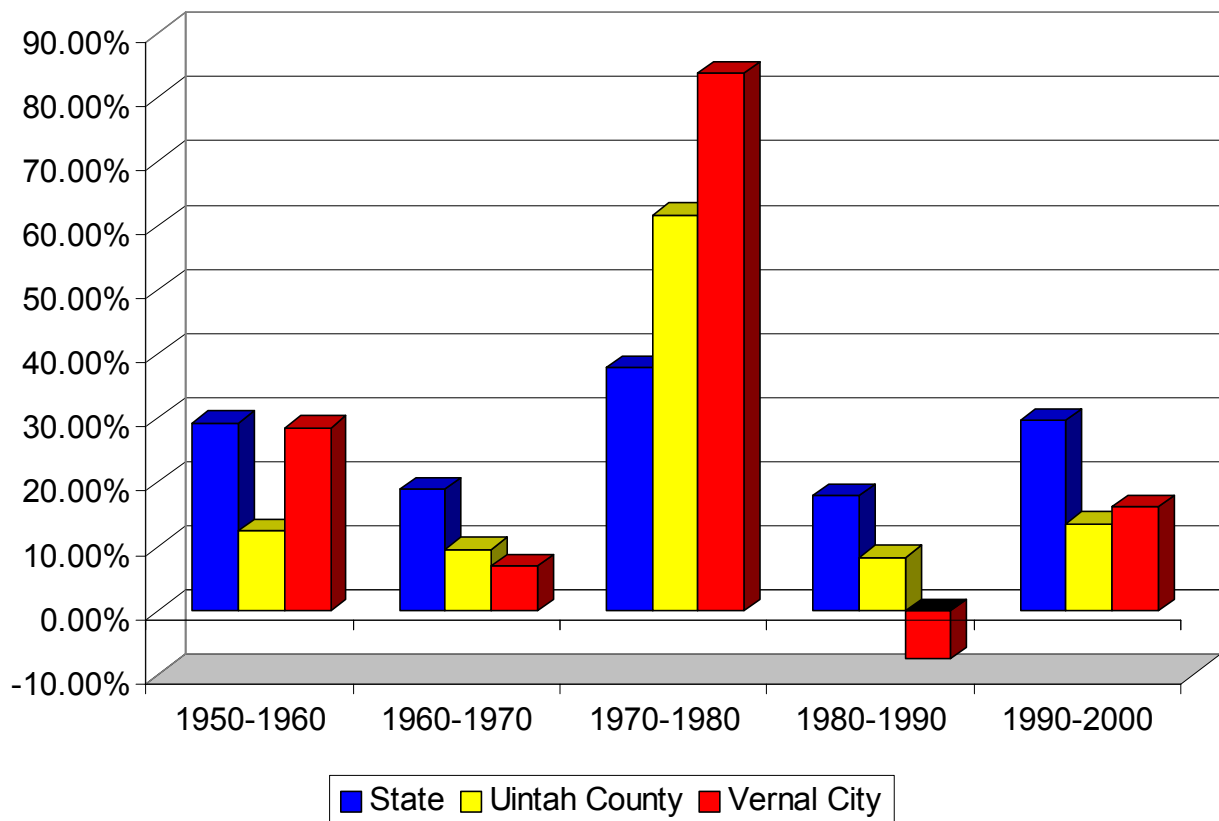
The majority of employees in Uintah County work in several primary employment sectors: Government, Mining, Trade, and Education & Health Services, as shown in Figure 8. In the county, these four sectors make up 60.62 percent of the labor force.

Figure 5. Population Change Data

Decennial Population Change

Decade	State of Utah	Uintah County	Vernal City
1950-1960	29.3%	12.45%	28.47%
1960-1970	18.9%	9.51%	6.92%
1970-1980	37.9%	61.67%	83.75%
1980-1990	17.9%	8.31%	-7.48%
1990-2000	29.6%	13.57%	16.10%

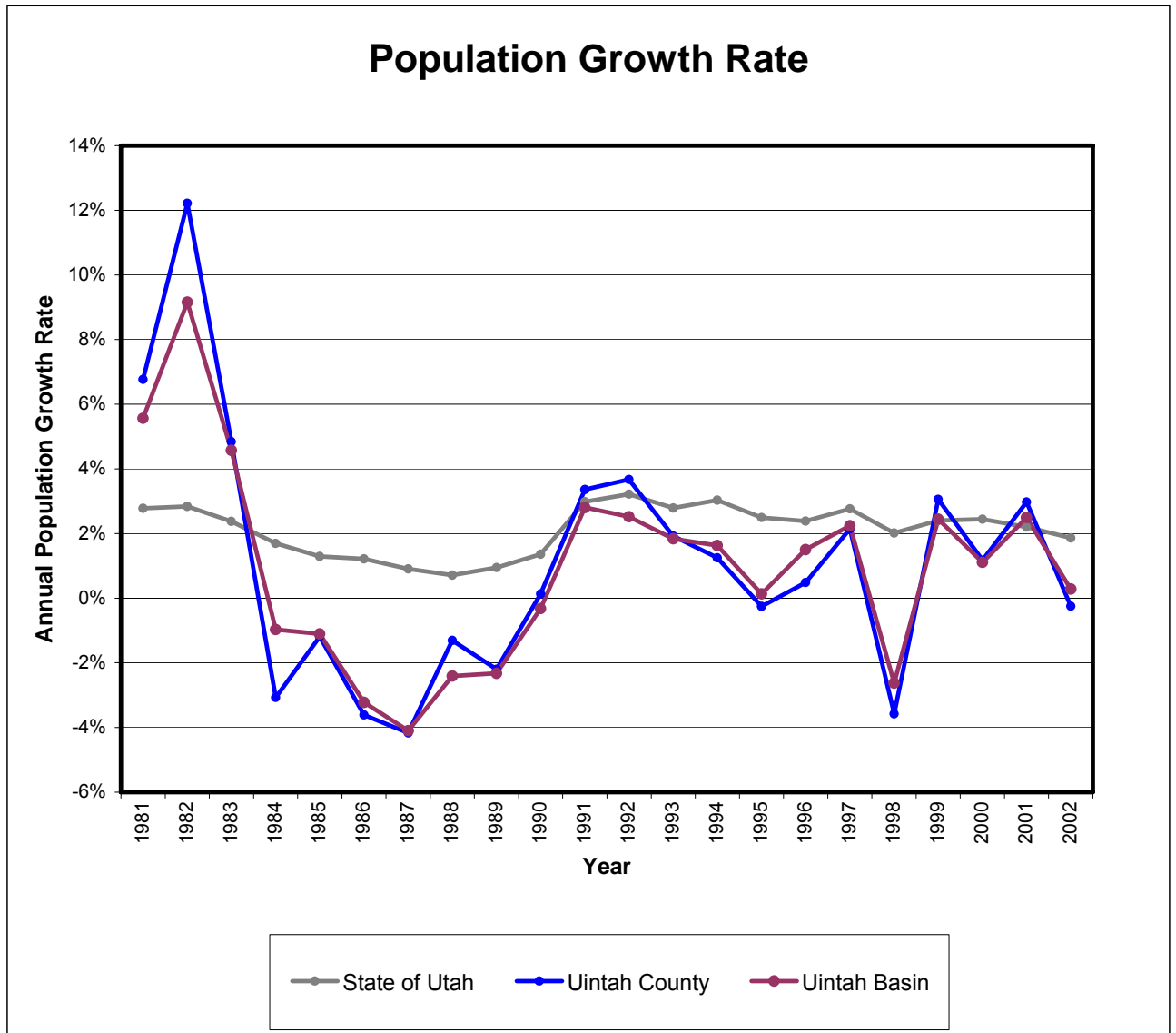
Decennial Population Change



Source Data: U.S. Bureau of the Census

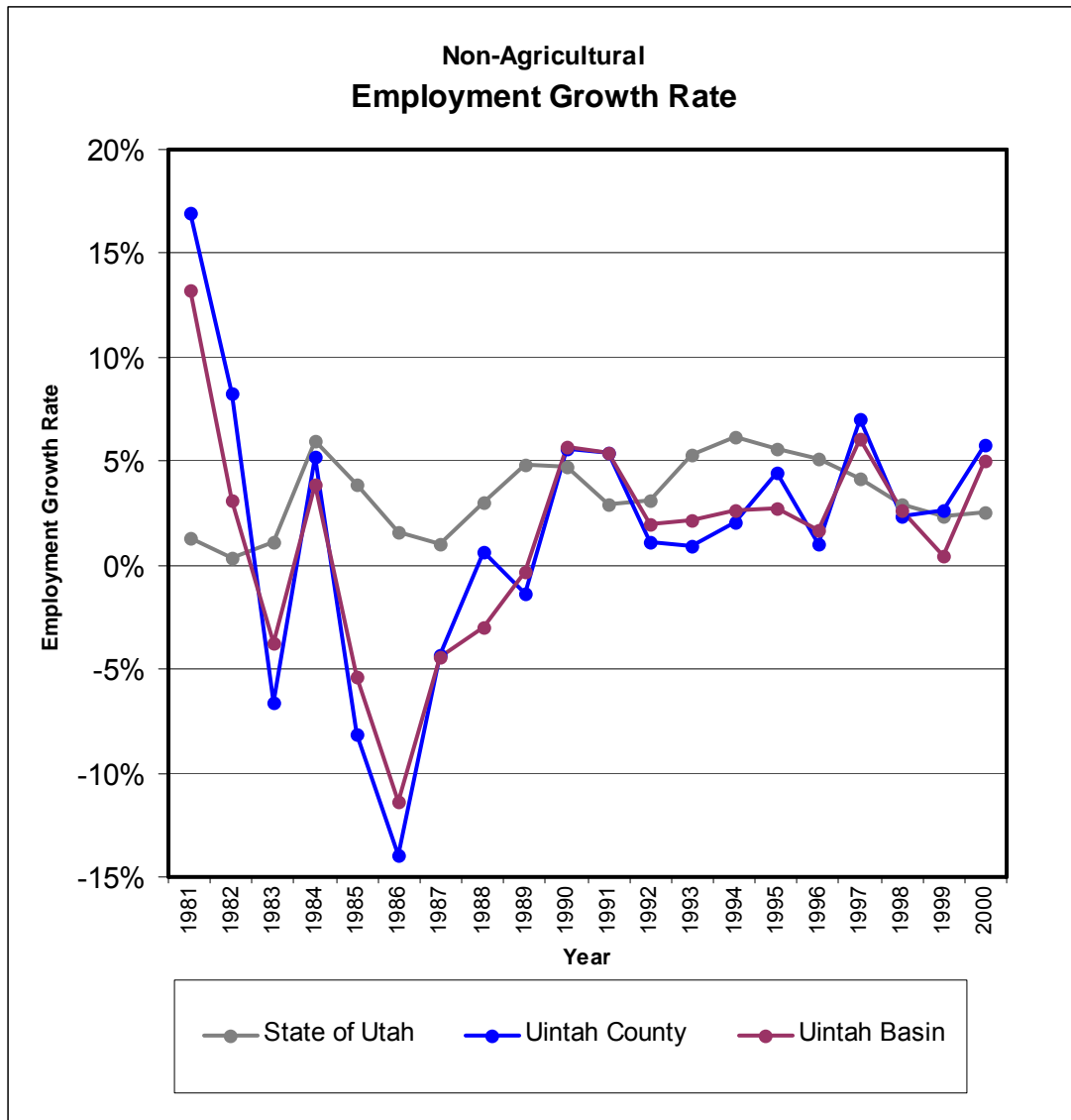
<http://www.governor.utah./dea/OtherPublications.html>

Figure 6. Population Growth Rate (1980-2000)



Source: Governors Office of Planning and Budget
<http://www.governor.utah.gov/dea>

Figure 7. Employment Growth Rate (1980-2000)



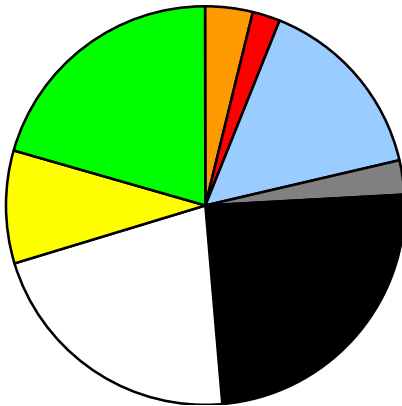
Source: Governors Office of Planning and Budget
<http://www.governor.utah.gov/dea>

Figure 8. Employment Sectors (1980-2000)

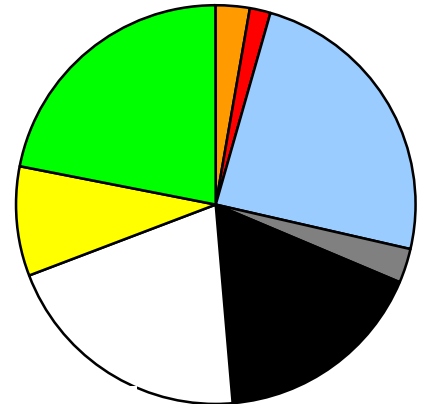
	Sector	1980	1990	2000	Δ% 1980 to 2000
	Construction	3.06%	2.07%	3.98%	30.21%
	FIRE	1.76%	1.16%	1.33%	-24.25%
	Government	11.83%	17.04%	15.26%	28.98%
	Manufacturing	2.05%	2.05%	1.94%	-5.50%
	Mining	18.92%	12.19%	11.46%	-39.44%
	Services	16.81%	14.58%	16.93%	0.66%
	TCPU	6.92%	6.27%	4.44%	-35.91%
	Trade	15.96%	15.60%	16.97%	6.31%

FIRE – Financial, Insurance, and Real Estate. TCPU – Transportation, Communications and Public Utilities

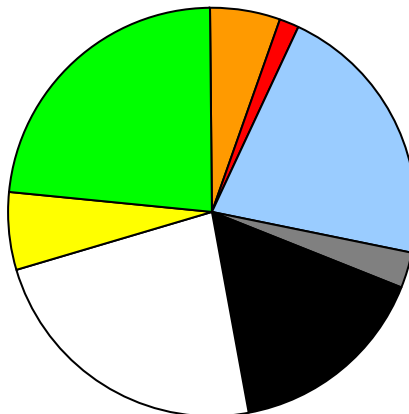
1980 Employment Sectors



1990 Employment Sectors



2000 Employment Sectors



Source: Governors Office of Planning and Budget
<http://www.governor.utah.gov/dea/HistoricalData.html>

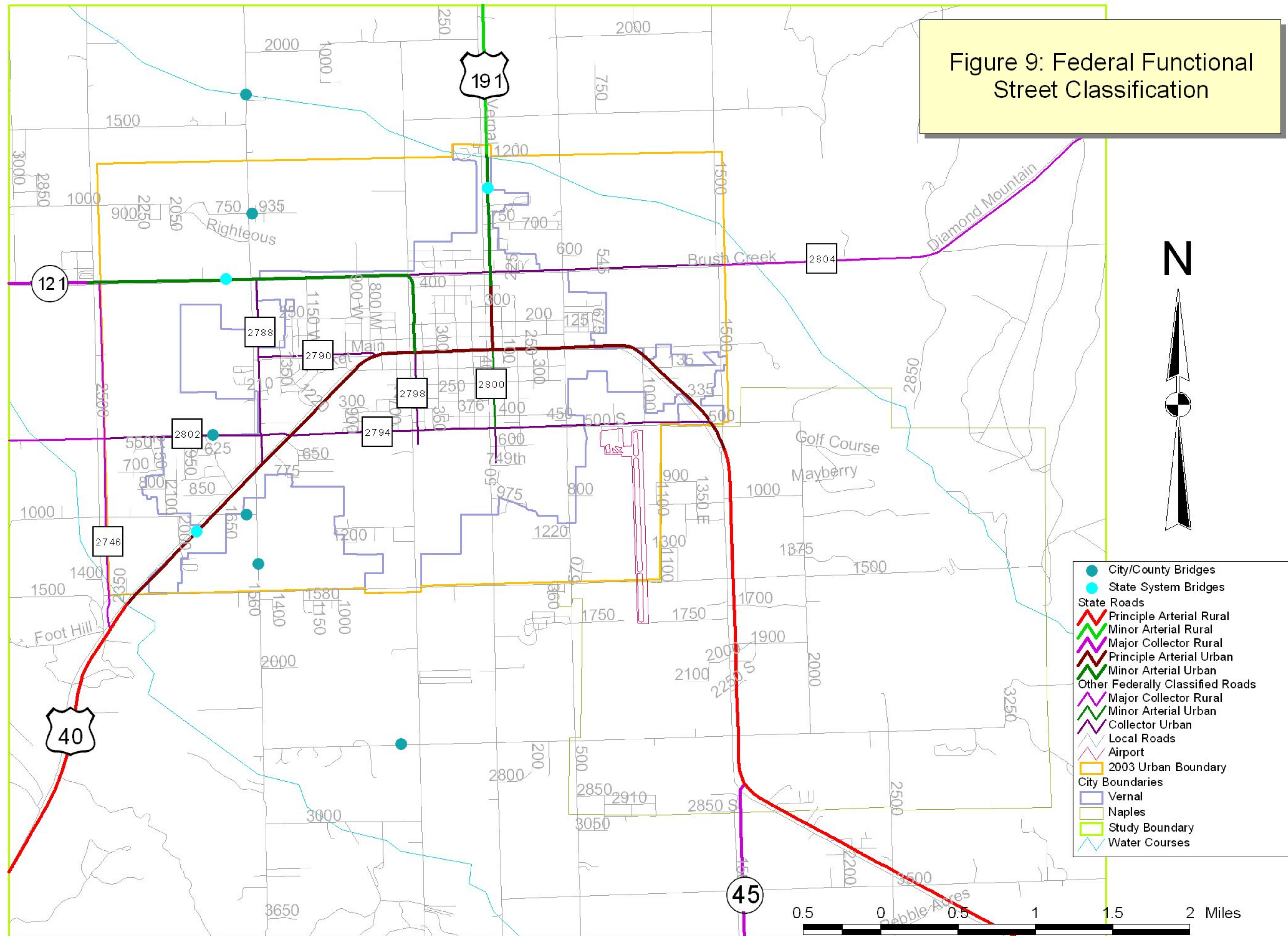
2.5. Functional Street Classification

This document identifies the current function and operational characteristics of the selected roadway network of Vernal City. Functional street classification identifies how a roadway functions and operates when a combination of the roadway's characteristics are evaluated. These characteristics include: types of trips on the road, Average Daily Traffic (ADT), property access and roadway spacing.

Six primary classifications used in classifying selected roadways of Vernal City are: Freeway, Major Arterial, Minor Arterial, Major Collector, Minor Collector and Local. A Freeway's function is to provide traffic mobility at higher speeds with limited access to adjacent properties. Arterials also provide a higher degree of traffic mobility with limited property access. Traffic from the local roads is gathered on to the Collector system, which provides a balance between mobility and property access trips. Local streets and roads serve property access based trips and these trips are generally shorter in length. Only roads that are classified as collectors or higher are eligible to use federal funds.

On the state system there are two principle arterials, two minor arterials, and one collector in the study area. US-40 is classified as a principle arterial and runs throughout the entire study area. It travels generally east/west and is the major link to Salt Lake City, the Dinosaur National Monument and Colorado. US-191 is classified as a principle arterial from US-40 until 500 North; from that point, and to the north, it is classified as a minor arterial. It travels north/south and is the link between areas outside the Basin and Flaming Gorge, a major recreation area. SR-121 is classified as a major collector until 2500 West; from there, until US-40, it is classified as a minor arterial. The road travels generally east/west and connects Vernal to Maeser and points in the northwest part of the County. Other federally classified roads in the area are 1500 South (collector), 500 South (collector), 500 North (collector), 2500 West (collector), 1500 West (collector), 500 West (collector), Vernal Avenue (minor arterial/collector) and 1500 East (collector). These roads have most of the traffic circulation in the area. Figure 9 shows the State system and the other Federally Classified Roads in the study area.

Figure 9: Federal Functional Street Classification



2.6. Bridges

There are ten bridges located in the study area that are important components of the study area's roadway network, helping to increase network continuity through physical barriers. Figure 10 identifies the location of these structures with their sufficiency rating.



The Ashley Creek Bridge on US-191 is scheduled for replaced by UDOT in 2004, to enhance safety for the traveling public. A two-lane bridge will replace the existing, insufficient bridge.

The sufficiency rating utilized by UDOT is a method of evaluating data that includes structural adequacy, serviceability, and need for public use. The result of this rating procedure is a score in which 100 represents an entirely sufficient bridge and zero represents an entirely insufficient or deficient bridge. Bridges that have ratings of 80 to 100 need no major work; bridges that have rating of 50 to 79 are candidates for rehabilitation; bridges that have ratings below 50 are candidates for replacement.

Figure 10: Bridge Sufficiency Rating

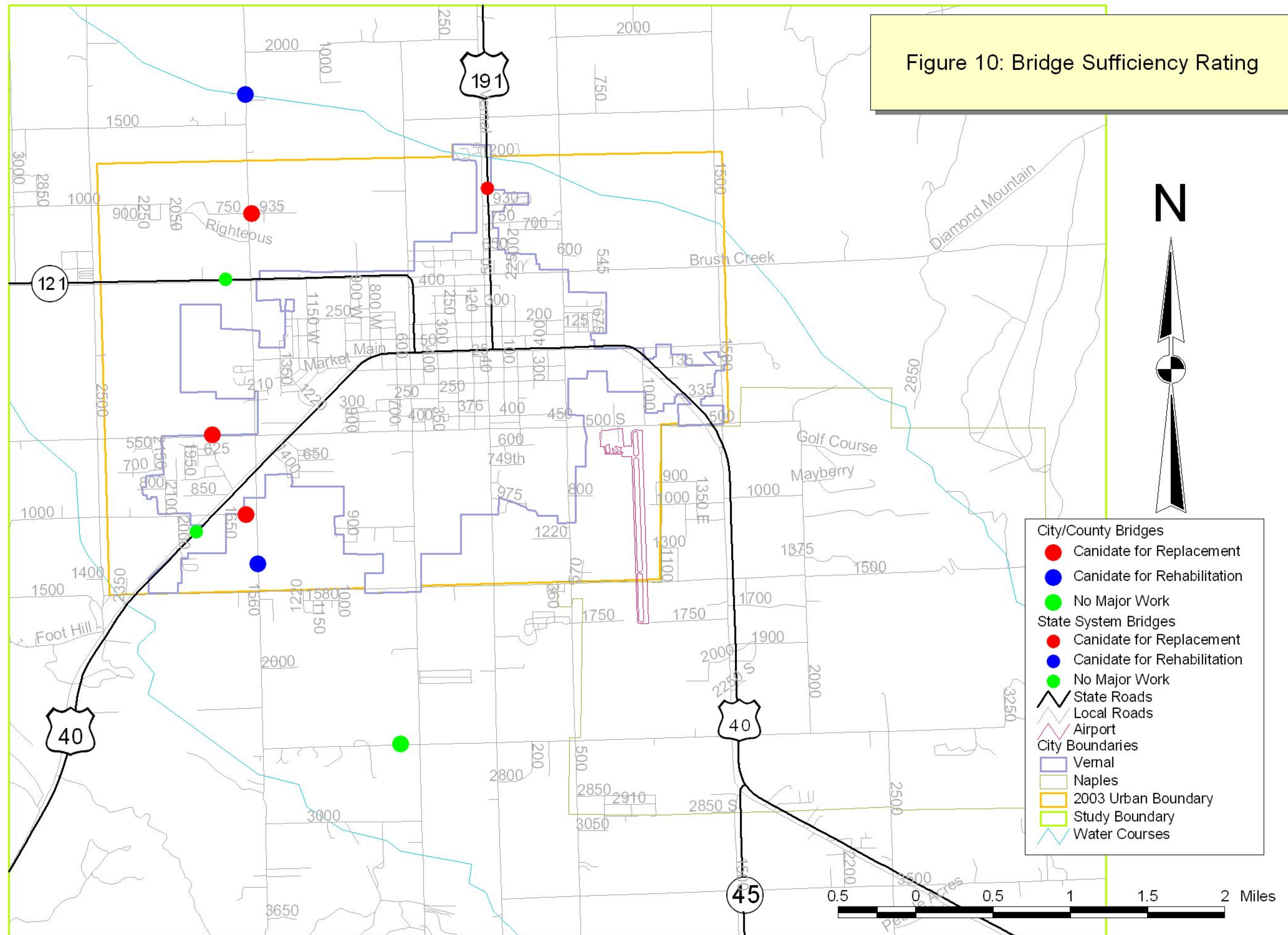


Table 1 compares the bridges in the study area and identifies their sufficiency rating and location.

Table 1. Bridges

Number	Location	Maximum Span	No. Lanes & Road Width	Sidewalk	Sufficiency Rating
Bridges on State System					
0D 828	US-40 over Steinaker Canal	9.10m	4 lanes 29.6m wide	Yes	84.6
0E 246	SR-121 over the Steinaker Canal	14.0m	2 lanes 13.0m wide	No	89.1
0D 739	US-191 over Ashley Creek	19.2m	2 lanes 12.2m wide	No	48.6
0E 1842	SR-121 over Ashley Upper Canal	7.0m	2 lanes 9.0m wide	No	91.3
Bridges on County/City Systems					
47015C	1600 North 1500 West over Ashley Creek	13.1m	2 lanes 9.8m wide	No	68.1
47016A	1520 West 750 North over Steinaker Canal	12.2m	1 lane 4.9m wide	No	47.1
47018A	1790 West 500 South Over Steinaker Canal	10.1m	2 lanes 8.4m Wide	No	48.2
47019A	1650 West 1000 South over Steinaker Canal	8.8m	2 lanes 6.1m wide	No	39.8
47020A	1300 South 1500 West over Steinaker Canal	9.4m	2 lanes 8.6m wide	No	67.5
47022D	680 West 2500 South over Steinaker Canal	8.8m	2 lanes 10.8m wide	No	97.0

Source: Utah Department of Transportation/Structures Division

These bridges are important to Vernal. The bridges on US-40 and SR-121 are sufficient for current needs. These bridges are critical to connecting Vernal and the western part of the State. The bridge on US-191 over Ashley Creek connects Vernal to Flaming Gorge. The Utah Department of Transportation is replacing the Ashley Creek Bridge in summer of 2004, due to the low sufficiency rating caused by its deteriorating condition. It is being replaced with a two-lane bridge that will be designed to current standards.

2.7. Traffic Counts

Recent average daily traffic count data for the State roads were obtained from UDOT. Table 2 shows the traffic count data on the key roadways of the study area. The number of vehicles in both directions that pass over a given segment of roadway in a 24-hour period is referred to as the average daily traffic (ADT) for that segment.

Table 2. Average Daily Traffic

Road	Segment	Year	Total ADT
US-40	East of SR-88 to Southwest INCL Vernal	2003	4,320
US-40	Southwest INCL Vernal to Junction with US-191	2003	20,528
US-40	Junction with US-191 to East INCL Vernal/North INCL Naples	2003	26,685
US-40	East INCL Vernal/North INCL Naples to SR-45	2003	9,390
US-40	SR-45 to South INCL Naples	2003	4,525
US-40	South INCL Naples to South of South INCL Naples	2003	4,465
SR-45	4500 South Uintah County to US-40	2003	2,020
SR-121	East of La Point to Maeser West Urban Boundary (2002) Vernal	2003	1,210
SR-121	Maeser West Urban Boundary (2002) Vernal to West INCL Vernal	2003	7,695
SR-121	West INCL Vernal to US-40 in Vernal	2003	9,800
US-191	Junction with US-40 in Vernal to North INCL Vernal	2003	3,970
US-191	North INCL Vernal to North Urban Boundary (2002) Vernal	2003	1,665

Source: Utah Department of Transportation

**INCL=Incorporated City Limits*

UDOT maintains 86 continuously operated automatic traffic recorders (ATR) throughout the State highway system. ATRs collect data continuously throughout the year in order to determine monthly, weekly, daily, and hourly traffic patterns. One ATR is located in the study area. The ATR is located 0.30 of a mile north of the Vernal City limits on US-191. This ATR measures the traffic coming to and from the Flaming Gorge area. Figure 11 depicts the daily and monthly variations in traffic volumes at this location. The following points summarize the 2003 data from the ATR at this location.

Traffic on US-191

- July was the highest volume month, 71.6% higher than the average
- February was the lowest volume month, 43.5% lower than the average
- The highest daily volumes occurred on Saturdays, 16.1% higher than the average
- The lowest daily volumes occurred on Tuesdays, 9.4% lower than the average

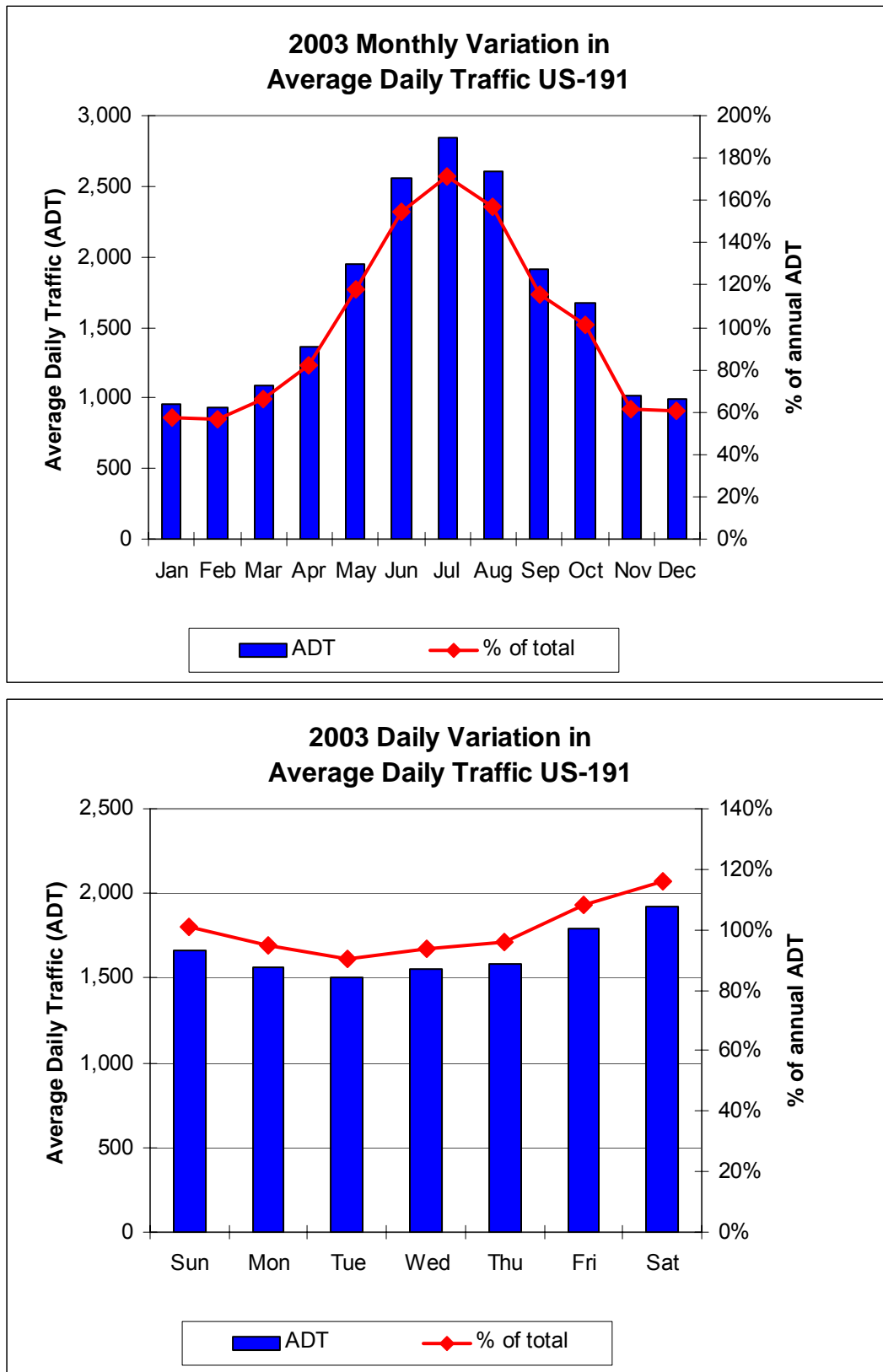
The peak month of July is consistent with a summer recreational usage. The months of June and August were not far behind in terms of numbers. December through February numbers were very close in the statistics. Saturday, being the highest day, is still consistent with the recreational use of US-191 north of Vernal. The daily averages also reflect, to some degree, the freight movement through the area. Since Colorado does not allow oversized trucks on its system, the oversized trucks use US-191 to go into Wyoming. Much of the traffic from the west passes through the State on Sunday. From the east, much of the traffic passes through the State on Friday. The hourly variations show that much of the traffic is between approximately 4:00 pm and 7:00 pm. There is a small peak in the morning between approximately 7:00 am and 8:00 am. This may or may not reflect traffic patterns for the local system. Figures 11 and 12 show the different variation in traffic on US-191.

UDOT'S numbers also include student traffic to and from their respective Roosevelt and Vernal campuses as residents of the area travel between Utah State University – Uintah Basin

Campus, the Uintah Basin Campus and the Uintah Basin Applied Technology College to complete their degrees. Section 2.10 Public Transportation discusses how the University is using public transportation to help alleviate the traffic between its Roosevelt campus and its Vernal campus.

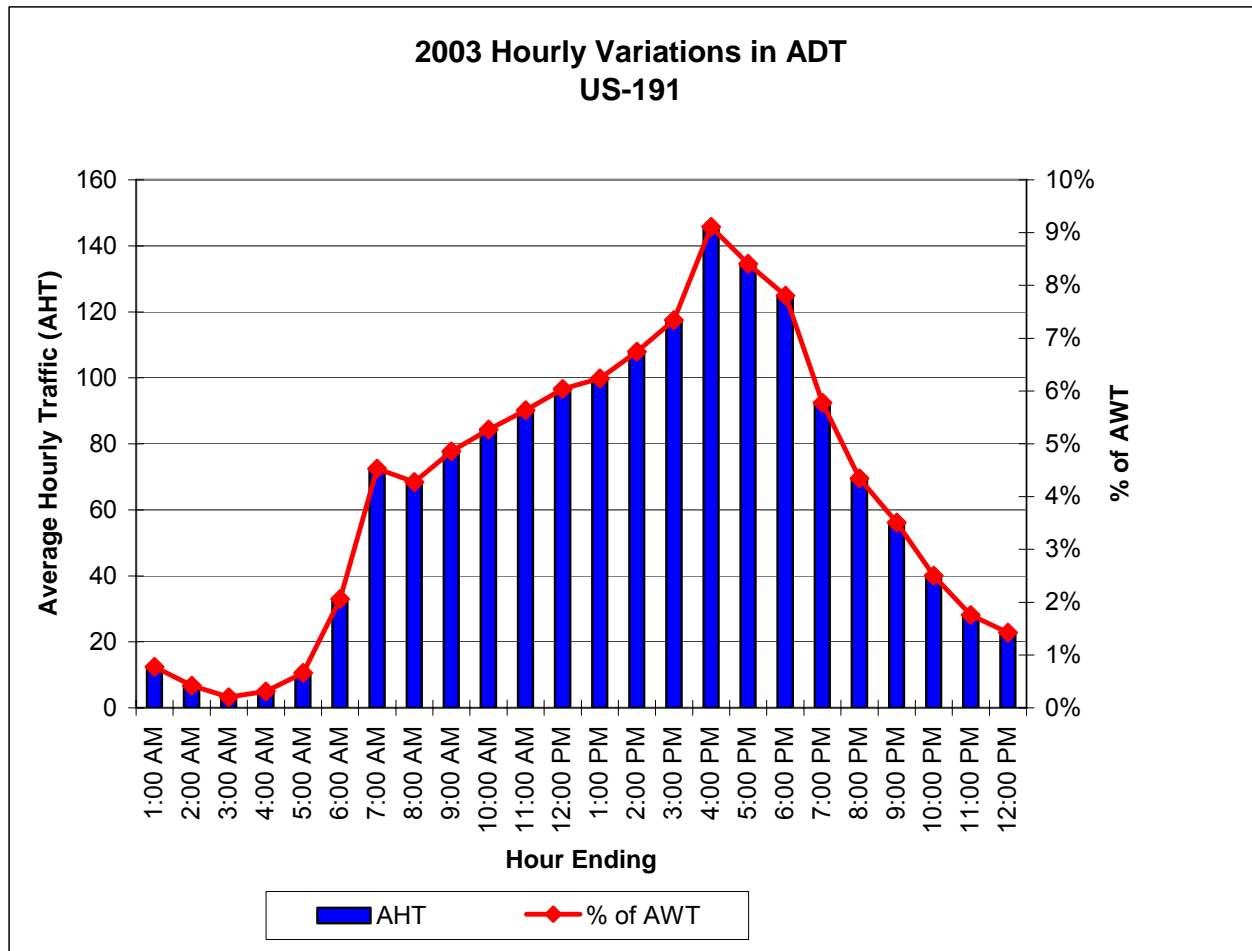


Figure 11. Monthly & Daily Variations in US-191 Traffic



Source: Utah Department of Transportation

Figure 12. Hourly Variations Traffic



Source: Utah Department of Transportation

2.8. Traffic Accidents

Traffic accident data was obtained from UDOT's database of reported accidents from 2002. Over 17 miles of roadway were analyzed to determine if they warrant further investigation.

Table 3 summarizes the accident statistics for those segments for the year 2002. Additional information includes the average daily traffic, the number of reported accidents, and the accident rates. The roadway segment accident rates were determined in terms of accidents per million vehicle miles traveled. Accident rates at the intersections were not calculated due to the lack of traffic volume data on the side streets.

The results show that one segment of US-40 has a higher crash rate than what is expected for this type of facility when compared to other similar facilities across the State. The segment from milepost 139.69 to milepost 141.47 is west of the southwest INCL of Vernal. SR-45 in the last segment that enters Naples from the south, milepost 38.93 to milepost 40.15, has an actual crash rate of almost twice what is expected. SR-121 from Maeser to the west INCL of Vernal also has an actual rate of almost double the expected crash rate. Both segments of US-191 leaving Vernal to the north have higher than expected crash rates for the facility. The other segments of State routes are below the expected rates. In order to find the cause of the higher than expected crash rates, Vernal City can request that UDOT Region 3 conduct a safety study with the UDOT Traffic and Safety Division to verify the rates and study the areas.

Table 3. Crash Data 2003

Road	From Milepost	End Milepost	ADT (2003)	# Crashes (2003)	Crash Rate	
					Actual	Expected*
US-40	139.69	142.22	4,320	10	0.98	1.65
US-40	142.23	144.72	20,528	70	2.90	4.50
US-40	144.73	145.98	26,685	13	1.06	9.49
US-40	145.99	148.70	9,390	15	1.68	1.96
US-40	148.71	149.43	4,525	1	0.63	1.65
US-40	149.43	150.68	4,465	4	1.46	1.65
SR-45	38.25	39.93	2,020	1	1.22	2.53
SR-121	37.13	37.71	1,210	4	5.41	2.53
SR-121	37.72	38.72	7,695	9	3.39	3.74
SR-121	38.73	40.19	9,800	19	2.46	3.74
US-191	201.54	202.38	3,970	11	10.39	2.85
US-191	202.39	203.75	1,665	2	2.22	2.40

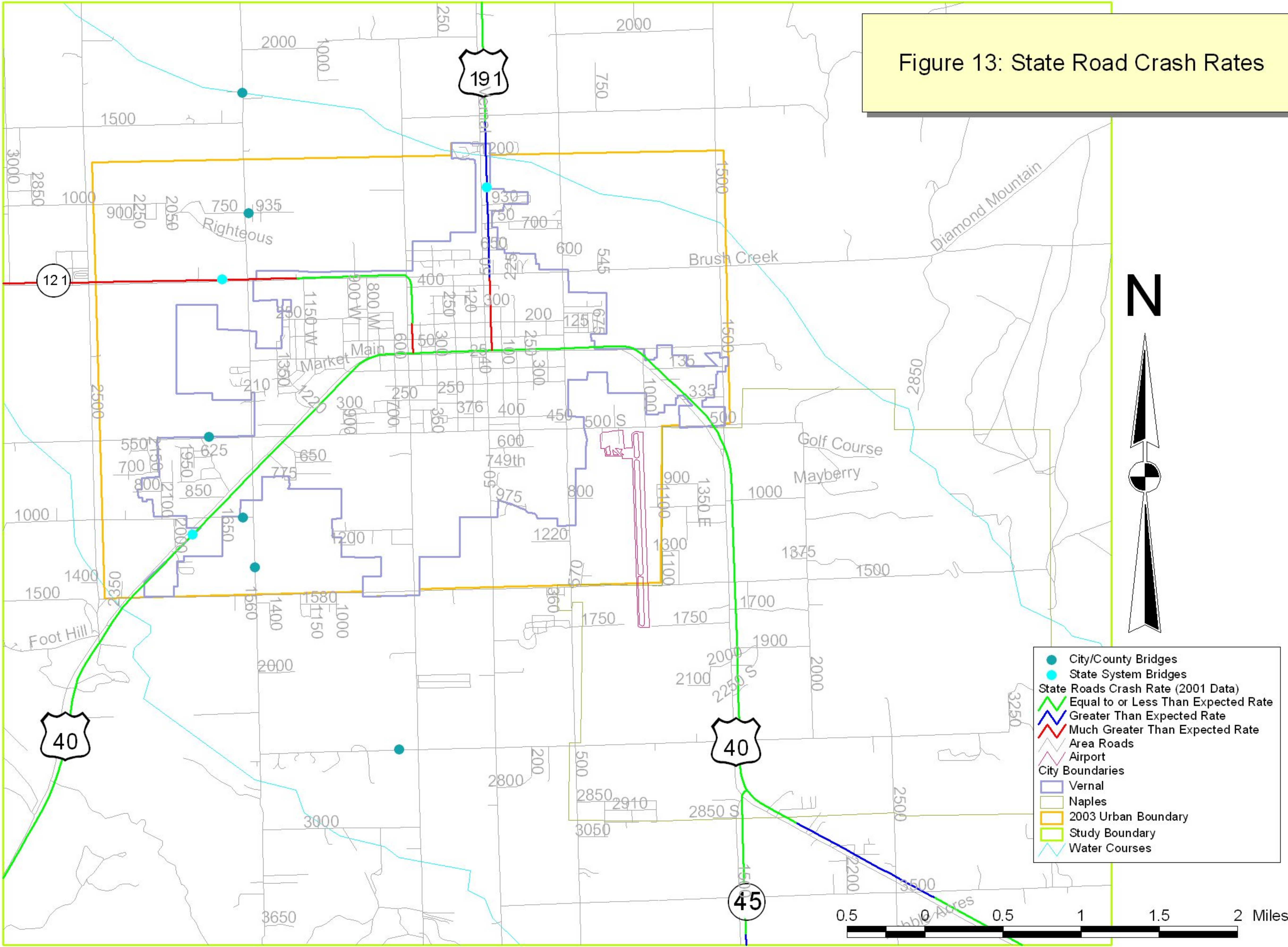
* Statewide average accident rates for functional class and volume group.

Red numbers indicates Actual Crash Rates that are higher than Expected Crash Rates.

2.9. Bicycle and Pedestrian

Vernal currently has only a few trails in the City limits, the most well known being the Kid's Canal Walking Path. Many of the streets in the City have sidewalks on at least one side of the street. Vernal is working to increase the location and types of facilities for bicycles and pedestrians. This activity is to be coordinated with future roadway improvements and other development activities.

Figure 13: State Road Crash Rates



Sidewalks in Vernal are consistent in the central business district area and school routes, with sidewalks available in most residential areas.

2.10. Public Transportation



Presently, the only public transit program in Vernal is associated with public shuttle busses for Utah State University – Uintah Basin Campus and the Uintah Basin Campus and the Uintah Basin Applied Technology College transporting students to and from their respective Roosevelt and Vernal campuses. A nominal fee is charged per trip. A Dial-a-Ride transit service is provided in the West Uintah County area for residents 60 years of age or older and is obtained through the Golden Age Center in Vernal.

Funding for a public transit program could be provided through a statutorily allowed $\frac{1}{4}$ cent sales tax dedicated for that purpose. As allowed by law, Vernal City is currently using the $\frac{1}{4}$ cent to fund road improvement projects throughout the City.

2.11. Traffic Control Signals

Traffic control signals have proven to be valuable devices for the control of vehicle and pedestrian traffic in the Vernal area and have exerted a profound influence on traffic flow particularly along the State highways serving the Vernal community. Traffic signals are presently located on Highway 40(5), Highway 191(1), and Highway 121 (3). Vernal City and Uintah County officials continue to monitor traffic signal needs and request warranting surveys to be completed through Region 3 as perceived needs arise. Most recently, a new traffic control signal was warranted for the intersection of 500 South and West Highway 40 and is presently being designed by UDOT Region 3 for a 2005 construction timetable. Vernal City is anticipating in the near future a warranted signal at 500 West and 100 South, the first City-funded and maintained signal.

2.12. Freight

Vernal is located at the junction of two major highway freight transportation routes; U.S. Highways 40 and 191, which handle both regional freight shipments and long-distance trucking movements. Colorado's limitations on truck size require the larger trucks used in Utah and Wyoming to be routed via US 191 and US 40 through Vernal. The region's extensive oil and gas fields require considerable hazardous material shipments that must pass through Vernal, resulting in the community maintaining an extensive emergency response program.

Vernal and the Uintah Basin lack diversified freight transportation options, which have limited local and regional economic development opportunities. Since 1999 studies have

been conducted to examine the feasibility of linking the Uintah Basin with the mainline U.S. railroad system via the construction of a shortline railroad. The evaluation of these studies is continuing as of this writing.

2.13. Aviation Facilities & Operations

At an elevation of 5274 ft., the Vernal/Uintah County Airport is located at the southeastern edge of the community, with 25% of the facility owned by Vernal City, and the remaining 75% owned by Uintah County. The airport is equipped with two paved runways; the longest is Runway 16/34 that is 6200 ft. long, 150 ft. wide with a parallel paved taxiway. The second runway is 4107 ft. long Runway 7/25, which is 60 ft. wide and is on an east/west alignment. Although lacking a Control Tower, the airport is equipped with Unicom to allow pilots to turn-on runway lights at night, and to contact the airport's Fixed Base Operator (FBO) at Dinaland Aviation. Automated Surface Observing System (ASOS) automated weather information is also available to pilots.

Commercial airline service to Vernal/Uintah County Airport is provided by Boise-based Salmon Air, which will provide two flights daily to and from Salt Lake City. Air Freight service is provided to Vernal/Uintah County to handle overnight parcels.

As the largest airport in the region, Vernal/Uintah County handles a large number of corporate jets for local businesses and industries. In order to better accommodate this important traffic, studies have been undertaken to construct a new north/south runway to replace existing Runway 16/34. This new runway will be 7700 ft. long and 100 ft. wide and will allow corporate jets to take-off with a full fuel load on hot summer days.

2.14. Revenue

Maintenance of the existing transportation facilities and construction of new facilities come primarily from revenue sources that include the Vernal City sales tax, federal funds, mineral development impact fees and State Class C funds.

Financing for local transportation projects consists of a combination of federal, state, and local revenues. However, this total is not entirely available for transportation improvement projects, since annual operating and maintenance costs must be deducted from the total revenue. In addition, the City is limited in their ability to subsidize the transportation budget from general fund revenues.

2.14.1. State Class B and C Program

The distribution of Class B and C Program monies is established by State legislation and is administered by the State Department of Transportation. Revenues for the program are derived from State fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. Seventy-five percent of the funds derived from the taxes and fees are kept by the Utah Department of Transportation for their construction and maintenance programs. The remaining twenty-five percent is made available to counties and cities.

Class B and C funds are allocated to each City and county by a formula based on population, road mileage, and land area. Class B funds are given to counties, and Class C

funds are given to cities and towns. The table below identifies the method used to allocated B and C funds.

Apportionment Method of Class B and C Funds

Based on	Of
50%	Roadway Mileage *Based on Surface Type Classification (Weighted Measure) Pave Road (X 5) Graveled Road (X 2) Other Road (X 1)
50%	Total Population

Class B and C funds can be used for maintenance and construction of highways, however thirty percent of the funds must be used for construction or maintenance projects that exceed \$40,000. Class B and C funds can also be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds. Vernal had a total of \$288,597 for 2002 and \$310,625.96 for 2003 in C funds.

2.14.2. Federal Funds



US-40 and 500 South is one of many intersections that were identified by the TAC that have concerns.

There are federal monies that are available to cities and counties through the federal-aid program. The funds are administered by the Utah Department of Transportation. In order to be eligible, a project must be listed on the five-year Statewide Transportation Improvement Program (STIP).

The Surface Transportation Program (STP) provides funding for any road that is functionally classified as a collector street or higher. STP funds can be used for a range of projects including rehabilitation and new construction. The Joint Highway

Committee programs a portion of the STP funds for projects around the State for urban areas. A portion of the STP funds can be used in any area of the State, at the discretion of the State Transportation Commission. Transportation Enhancement funds are allocated based on a competitive application process. The Transportation Enhancement Committee reviews the applications and then a portion of those are passed to the State Transportation Commission. Transportation enhancements include 12 categories ranging from historic preservation, bicycle and pedestrian facilities, and water runoff mitigation. Other such

federal and state trails funds that have been available come from the Utah State Parks and Recreation Program.

The amount of money available from UDOT for such projects specifically in the study area varies each year depending on the planned projects in UDOT's Region Three. As a result, federal-aid program monies are not listed as part of the study area's transportation revenue, although Vernal City has been successful in securing federal funding for collector roads that are part of its transportation system. The federal aid project for 500 South/500 West is now underway with funding for 500 East available in 2006/2007.

2.14.3 Local Funds

Vernal City, like most cities, has utilized general fund revenues in its transportation program. Other options used by the City involve arrangements, through the creation of special improvement districts. These districts are organized for the purpose of funding a single, specific project that benefits an identifiable group of properties. Another source of funding used by the City includes revenue bonding for projects felt to be beneficial to the entire City. The Community Impact Board of the State of Utah has provided significant financing of road projects in Vernal through both grants and loans.

2.14.4. Private Sources

Private interests often provide resources for transportation improvements. Developers construct the local streets within the subdivisions and often dedicate rights-of-way and participate in the construction of collector or arterial streets adjacent to their developments. Developers can also be considered as a possible source of funds for projects through impact fees, because of the impacts of the development, such as the need for traffic signals or street widening.



3. Future Conditions

3.1 Land Use and Growth

Vernal's Transportation Master Plan must be responsive to current and future needs of the area. The area's growth must be estimated and incorporated into the evaluation and analysis of future transportation needs. This is done by:

- Forecasting future population, employment, and land use;
- Projecting traffic demand;
- Forecasting roadway travel volumes;
- Evaluating transportation system impacts;
- Documenting transportation system needs; and
- Identifying improvements to meet those needs.

This chapter summarizes the population, employment, and land use projections developed for the project study area. Future traffic volumes for the major roadway segments are based on projections utilizing 20 years of traffic count history. The forecasted traffic data are then used to identify future deficiencies in the transportation system.

3.4.1. Population and Employment Forecasts

The Governor's Office of Planning and Budget develop population and employment projections. The current population and employment levels, as well as the future projections for each, are shown for Vernal City and County in the following table.

Population and Employment

Year	City	County	
	Population	Population	Employment
2000	7,714	25,224	13,004
2030	8,580	30,619	16,125

3.4.2. Future Land Use

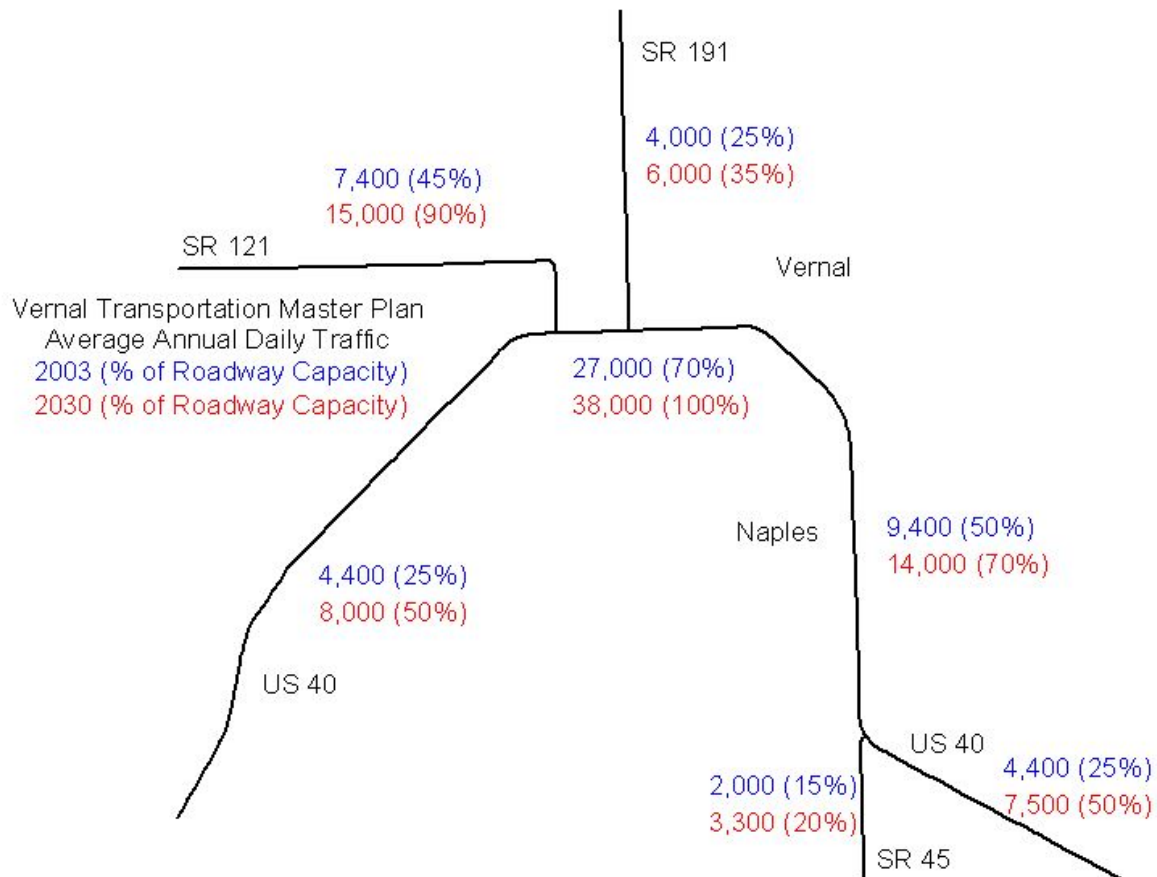
Vernal City has adopted a Zoning Map originally in the late 1970's. Since that time amendments have been made to represent area changes. The Zoning Map identifies likely land use types in the City. New residential growth is occurring in the northwest and southwest areas of the City, continued commercial growth along the US-40 corridor, and continued development of the commercial and industrial areas of the City.

3.5. Traffic Forecast

The Utah Department of Transportation has recently completed a Long Range Plan for the State highways. As part of the Long Range Plan, UDOT developed traffic forecasts for the 6000 miles of State highways.

Traffic in the Vernal area is growing and will continue to grow. Although the population projections from the Governors Office of Planning and Budget show a 1% annual growth,

traffic has historically grown at about 2% to 4%. If historical growth continues SR 121 and US 40 in downtown Vernal could reach their maximum capacities in the next 25 years. Although US 40 west of Vernal does not operate over capacity chronically, there are times when heavy truck volumes mixed with significant automobile traffic causes reduced speeds and safety hazards.



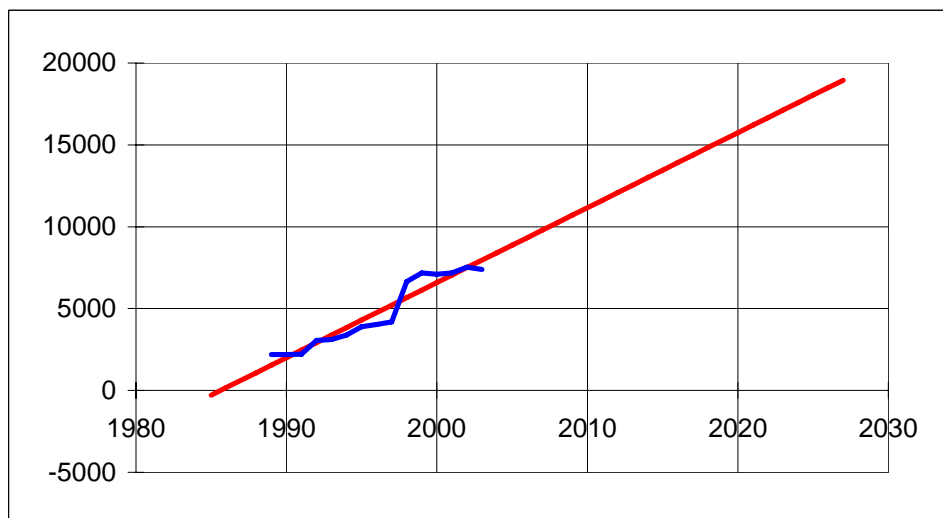


Route SR 121
 Limits North of US 40

Year	AADT	Forecast
1985		-286
1986		172
1987		631
1988		1089
1989	2,190	1547
1990	2,200	2005
1991	2,220	2463
1992	3,055	2921
1993	3,105	3379
1994	3,390	3837
1995	3,900	4295
1996	4,035	4753
1997	4,195	5211
1998	6,649	5669
1999	7,180	6127
2000	7,100	6585
2001	7,170	7043
2002	7,520	7501
2003	7,385	7959
2004		8417
2005		8875
2006		9333
2007		9791
2008		10249
2009		10708
2010		11166
2011		11624
2012		12082
2013		12540
2014		12998
2015		13456
2016		13914
2017		14372
2018		14830
2019		15288
2020		15746
2021		16204
2022		16662
2023		17120
2024		17578
2025		18036
2026		18494
2027		18952

10% Trucks

Projection based on 1989 to 2003 data
 6.5% growth rate → 458 vehicles/year



Notes

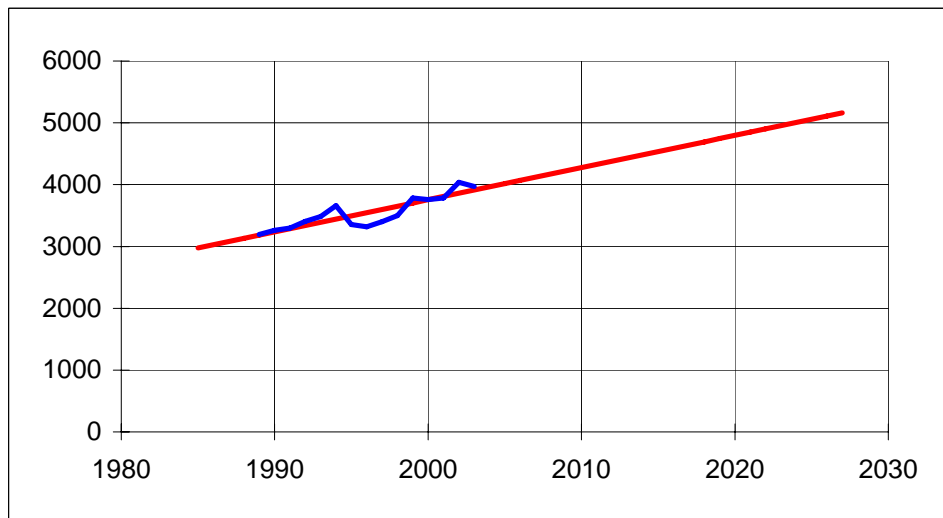


Route SR 191
 Limits North of US 40

Year	AADT	Forecast
1985		2975
1986		3027
1987		3080
1988		3132
1989	3,195	3184
1990	3,260	3236
1991	3,300	3288
1992	3,405	3340
1993	3,485	3392
1994	3,660	3444
1995	3,355	3496
1996	3,320	3548
1997	3,400	3600
1998	3,498	3652
1999	3,785	3704
2000	3,760	3756
2001	3,785	3808
2002	4,040	3860
2003	3,970	3912
2004		3964
2005		4016
2006		4068
2007		4120
2008		4172
2009		4224
2010		4276
2011		4328
2012		4380
2013		4433
2014		4485
2015		4537
2016		4589
2017		4641
2018		4693
2019		4745
2020		4797
2021		4849
2022		4901
2023		4953
2024		5005
2025		5057
2026		5109
2027		5161

10% Trucks

Projection based on 1989 to 2003 data
 1.4% growth rate → 52 vehicles/year



Notes

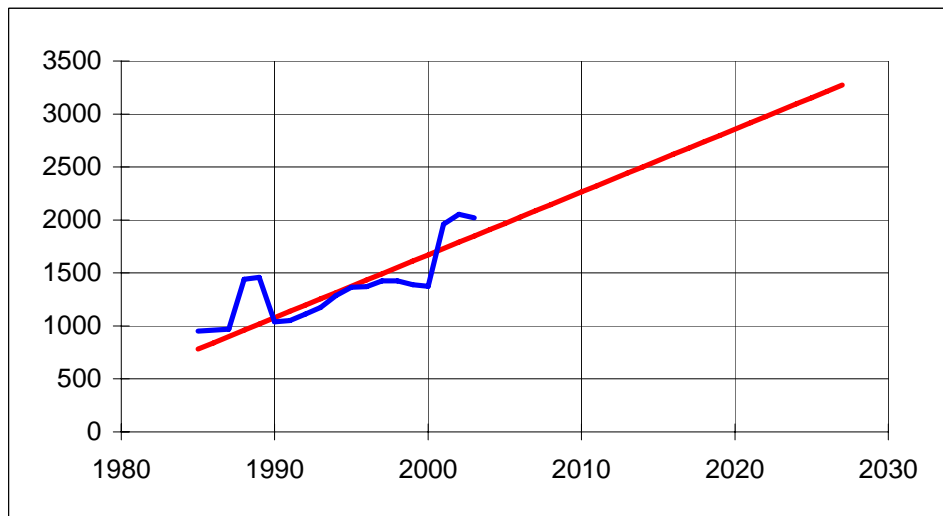


Route SR 45
 Limits South of Naples

Year	AADT	Forecast
1985	950	781
1986	960	841
1987	970	900
1988	1,440	959
1989	1,460	1019
1990	1,040	1078
1991	1,050	1137
1992	1,110	1196
1993	1,175	1256
1994	1,285	1315
1995	1,365	1374
1996	1,370	1434
1997	1,425	1493
1998	1,425	1552
1999	1,390	1612
2000	1,375	1671
2001	1,960	1730
2002	2,055	1789
2003	2,020	1849
2004		1908
2005		1967
2006		2027
2007		2086
2008		2145
2009		2205
2010		2264
2011		2323
2012		2383
2013		2442
2014		2501
2015		2560
2016		2620
2017		2679
2018		2738
2019		2798
2020		2857
2021		2916
2022		2976
2023		3035
2024		3094
2025		3153
2026		3213
2027		3272

15% Trucks

Projection based on 1989 to 2003 data
 3.4% growth rate → 59 vehicles/year



Notes

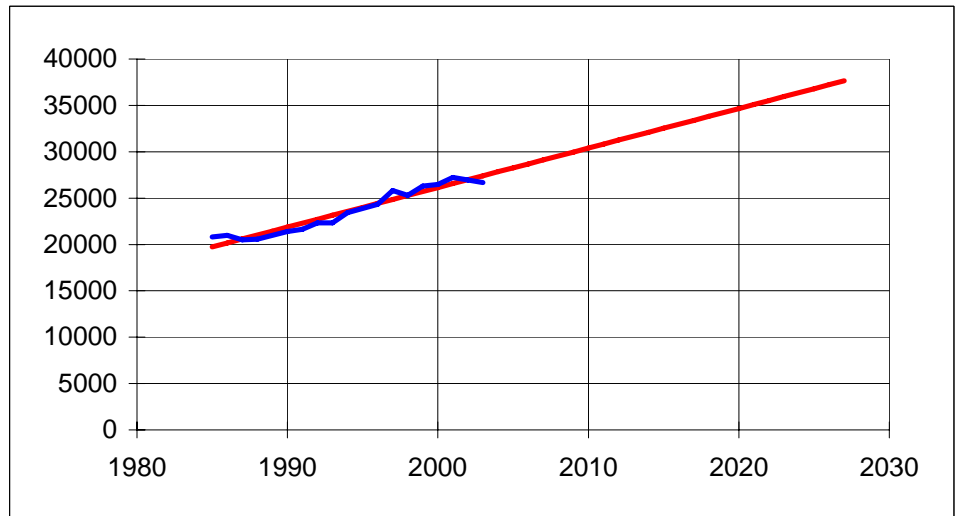


Route US 40
 Limits Downtown Vernal - SR 121 to SR 191

Year	AADT	Forecast
1985	20,800	19735
1986	21,000	20161
1987	20,500	20588
1988	20,585	21015
1989	20,980	21441
1990	21,390	21868
1991	21,645	22294
1992	22,325	22721
1993	22,325	23148
1994	23,430	23574
1995	23,875	24001
1996	24,330	24427
1997	25,814	24854
1998	25,297	25280
1999	26,285	25707
2000	26,468	26134
2001	27,230	26560
2002	26,945	26987
2003	26,685	27413
2004		27840
2005		28267
2006		28693
2007		29120
2008		29546
2009		29973
2010		30400
2011		30826
2012		31253
2013		31679
2014		32106
2015		32532
2016		32959
2017		33386
2018		33812
2019		34239
2020		34665
2021		35092
2022		35519
2023		35945
2024		36372
2025		36798
2026		37225
2027		37651

5% Trucks

Projection based on 1985 to 2003 data
 1.6% growth rate → 427 vehicles/year



Notes

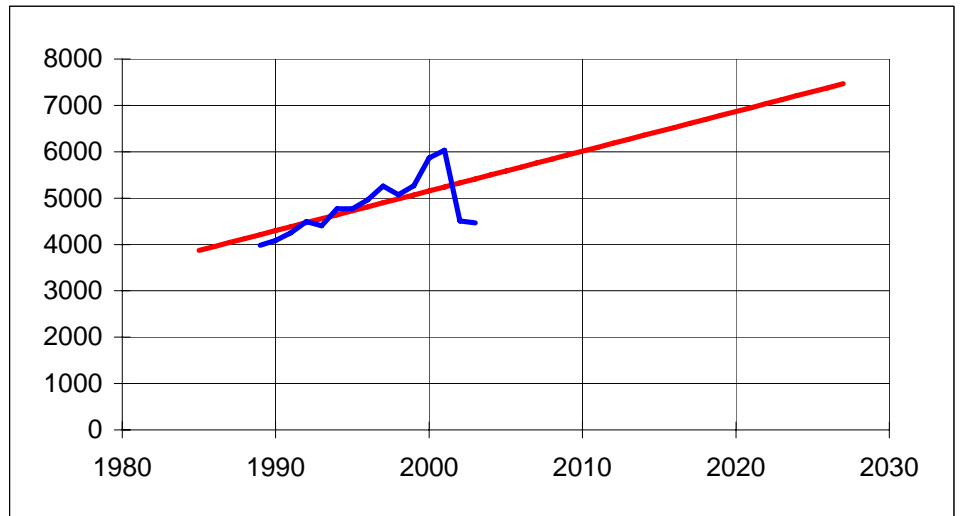


Route US 40
 Limits East of Naples

Year	AADT	Forecast
1985		3871
1986		3957
1987		4042
1988		4128
1989	3,985	4214
1990	4,085	4299
1991	4,250	4385
1992	4,495	4470
1993	4,405	4556
1994	4,770	4642
1995	4,770	4727
1996	4,960	4813
1997	5,262	4899
1998	5,072	4984
1999	5,270	5070
2000	5,865	5155
2001	6,035	5241
2002	4,505	5327
2003	4,465	5412
2004		5498
2005		5584
2006		5669
2007		5755
2008		5840
2009		5926
2010		6012
2011		6097
2012		6183
2013		6269
2014		6354
2015		6440
2016		6526
2017		6611
2018		6697
2019		6782
2020		6868
2021		6954
2022		7039
2023		7125
2024		7211
2025		7296
2026		7382
2027		7467

8% Trucks

Projection based on 1989 to 2003 data
 1.6% growth rate → 86 vehicles/year



Notes

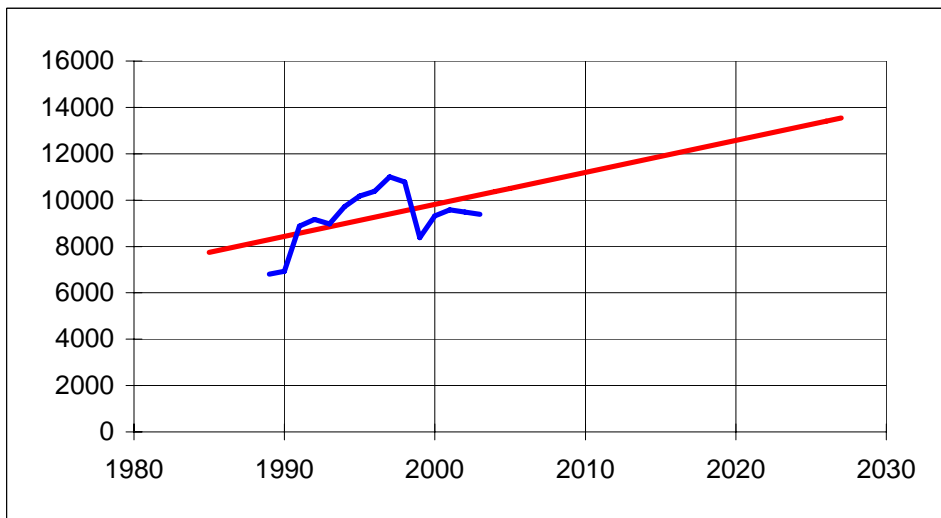


Route US 40
 Limits Naples

Year	AADT	Forecast
1985		7744
1986		7882
1987		8020
1988		8159
1989	6,800	8297
1990	6,935	8435
1991	8,880	8573
1992	9,160	8711
1993	8,975	8850
1994	9,720	8988
1995	10,180	9126
1996	10,375	9264
1997	11,007	9402
1998	10,786	9541
1999	8,375	9679
2000	9,320	9817
2001	9,580	9955
2002	9,480	10093
2003	9,390	10232
2004		10370
2005		10508
2006		10646
2007		10785
2008		10923
2009		11061
2010		11199
2011		11337
2012		11476
2013		11614
2014		11752
2015		11890
2016		12028
2017		12167
2018		12305
2019		12443
2020		12581
2021		12719
2022		12858
2023		12996
2024		13134
2025		13272
2026		13411
2027		13549

6% Trucks

Projection based on 1989 to 2003 data
 1.4% growth rate → 138 vehicles/year



Notes

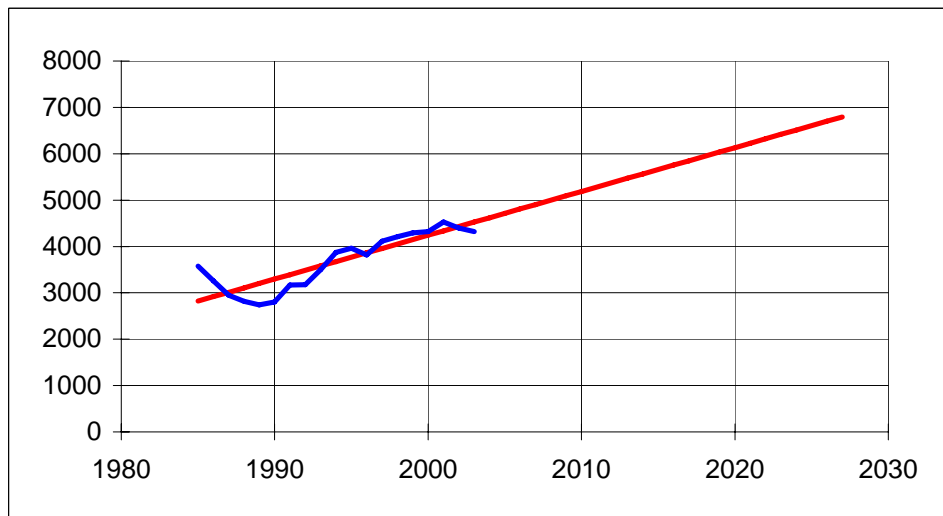


Route US 40
 Limits West of Vernal

Year	AADT	Forecast
1985	3,575	2824
1986	3,260	2918
1987	2,945	3013
1988	2,815	3107
1989	2,740	3202
1990	2,800	3296
1991	3,170	3391
1992	3,175	3485
1993	3,500	3580
1994	3,875	3674
1995	3,960	3769
1996	3,820	3864
1997	4,115	3958
1998	4,210	4053
1999	4,290	4147
2000	4,320	4242
2001	4,525	4336
2002	4,400	4431
2003	4,320	4525
2004		4620
2005		4714
2006		4809
2007		4904
2008		4998
2009		5093
2010		5187
2011		5282
2012		5376
2013		5471
2014		5565
2015		5660
2016		5754
2017		5849
2018		5944
2019		6038
2020		6133
2021		6227
2022		6322
2023		6416
2024		6511
2025		6605
2026		6700
2027		6794

17% Trucks

Projection based on 1985 to 2003 data
 2.2% growth rate → 95 vehicles/year



Notes

4. Transportation Improvement Projects

4.1. Recommended Projects

The TAC identified the following as their priorities:

Intersections –

- US-191 (Vernal Avenue) and 500 North
- 100 South and 500 West
- US-40 and 1000 South (West Side)
- US-40 and 100 South
- US-40 and 500 East
- US-40 and 500 South (East Side)
- 500 West and 500 South

Roadway –

- Main Street – 1500 West to 2500 West
- 2000 West – 500 South to 500 North
- 1000 South – US-40 to 500 East

Cost estimates developed for this document are based on full width pavement reconstruction and full width Right-of-Way purchase.

Transportation Needs and Cost Estimates

[illegible]

4.2. Revenue Summary

4.2.1. Federal, State and City Participation

Federal and State participation is absolutely necessary for the success of implementing the projects on federal-aid eligible roads. UDOT needs to see the Transportation Master Plan so that they understand what the City wants to do with its transportation system. UDOT can then weigh the priorities of the City against the rest of the State. Vernal City and UDOT Region 3 will continue to coordinate on UDOT's five-year Statewide Transportation Improvement Program (STIP).



Ken Bassett helps with the prioritizing of intersection projects for the Vernal City TMP.

Federal aid often has a local match requirement and the percent of the match may vary by the funding source. Vernal may have to fully fund all projects that are not eligible for State or Federal funding.

4.2.2. Impact Fees, Development Fees and Special Improvement Districts

Special improvement districts (SIDs) can be major contributors to the revenue stream to fund projects. The Transportation Master Plan is a tool that provides technical analysis and justification to warrant establishing significant participation by those who pay impact fees or SIDs.

Vernal City currently has impact fees for water and sewer projects. The City may continue to apply development fees for transportation projects

4.3. Financial Potential

A significant shortfall can be projected for the short-range and long-range programs based on previous sections of this study. The following options may be available to help offset all or part of the anticipated shortfalls:

- Transportation development impact fees.
- Increased general fund allocation for transportation projects.
- General obligation bonds repaid with property tax levies.
- Increased participation by developers, including cooperative programs and incentives.
- Special improvement districts (SIDs), whereby adjacent property owners are assessed portions of the project cost.
- Sales or other tax increase.
- State funding for improvements on the City roadway system.
- Increased gas tax, which would have to be approved by the State Legislature.

- Federal-aid available under one of the programs provided in the federal transportation bill (ISTEA is the current bill; SAFETEA will likely be passed in early 2004).

Increased general fund allocation means that General Funds must be diverted from other governmental services and/or programs. General obligation bonds provide initial capital for transportation improvement projects, but add to the debt service of the governmental agency.



US-40 and 1000 South is one of the top priority intersections for the TAC.

Participation by private developers provides a promising funding mechanism for new projects. Developers can contribute to transportation projects by constructing on-site improvements along their site frontage and by paying development fees. Municipalities commonly require developers to dedicate right-of-way and widen streets along the site frontage. A negative side of the on-site improvements is that the streets are improved in pieces. If there are not several developers adjacent to one

another at the same time, a continuous improved road is not provided. One way to overcome this problem is for the

jurisdiction to construct the street and charge the developers their share when they develop their property.

Another way developers can participate is through development fees. The fees would be based on the additional improvements required to accommodate the new development and would be proportioned among each development. The expenditure of additional funds provided by the fees would be subject to the City's spending limit. However, development fees are often a controversial issue and may or may not be an appropriate method of funding projects.

5. Planning Issues and Guidelines

This Chapter has two major sections. The first is a discussion of Guidelines and Policies, focusing on guidelines to maintain and promote a safe and efficient transportation system in the future. The second section is Bicycles and identifies the role of bicycles in local transportation, and recommends how to include bicycles as a viable mode of transportation.

5.1. Guidelines and Policies

This section will describe some of the components of the transportation system and provide maintenance and operational guidelines to achieve a safe and efficient transportation system.

These guidelines address certain areas of concern that are applicable to the Vernal study.

5.1.1. Access Management

This section will define and describe some of the aspects of Access Management for roadways and why it is so important. The UDOT website, www.udot.utah.gov, has more about UDOT policy on Access Management. Access Management can make many of the roads in a system work better and operate more safely if properly implemented. There are many benefits to properly implemented access management. Some of the benefits are as follows:

- Reduction in traffic conflicts and accidents
- Reduced traffic congestion
- Preservation of traffic capacity and level of service
- Improved economic benefits to businesses and service agencies
- Potential reductions in air pollution from vehicle exhausts

Though Access Management is generally used on roads that are larger and have more volume, it can have impacts on those roads that are defined as local as well.

5.1.1.1. Definition

Access Management is the process of comprehensive application of traffic engineering techniques in a manner that seeks to optimize highway system performance in terms of safety, capacity, and speed. Access Management is one of many tools that make a traffic system work better with what is available.

5.1.1.2. Access Management Techniques

There are many techniques that can be used in Access Management. The most common techniques are signal spacing, street spacing, access spacing, and interchange to crossroad access spacing. There are various distances for each spacing, dependant upon the roadway type being accessed and the accessing roadway. The Utah Department of Transportation has developed an Access Management program. More information can be gathered from the UDOT website and from the Access Management Program Coordinator. The program can be revised to fit the needs of the City.

5.1.1.3. Where to Use Access Management

Access Management can be used on any roadway. In some cases, such as State Highways, access management is a requirement by the agency in charge of the facility. Access management can be used as an inexpensive way to improve performance on a major roadway that is increasing in volume. Access Management should be used on new roadways and roadways that are to be improved so as to prolong the usefulness of the roadway.

5.1.2. Context Sensitive Solutions

Context Sensitive Solutions (CSS) is a philosophy that guides planning, designing, constructing, and maintaining safe transportation solutions in harmony with the community and the environment.

CSS addresses the need, purpose, safety and service of a transportation project, as well as the protection of scenic, aesthetic, historic, environmental and other community values. CSS is an approach to transportation solutions that find, recognize and incorporate issues/factors that are part of the larger context such as the physical, social, economic, political and cultural impacts.

5.1.3. Recommended Roadway Cross Sections

Cross sections are the combination of the individual design elements that constitute the design of the roadway. Cross section elements include the pavement surface for driving and parking lanes, curb and gutter, sidewalks and additional buffer/landscape areas. Right-of-way is the total land area needed to provide for the cross section elements.

The design of the individual roadway elements depends on the intended use of the facility. Roads with higher design volumes and speeds need more travel lanes and wider right-of-way than low volume, low speed roads. The high use roadway type should include wider shoulders and medians, separate turn lanes, dedicated bicycle lanes, elimination of on street parking, and control of driveway access. For most roadways, an additional buffer area is provided beyond the curb line. This buffer area accommodates the sidewalk area, landscaping, and local utilities. Locating the utilities outside the traveled way minimizes traffic disruption in utility repairs or changes in service are needed.

Vernal City code refers street right-of-way width and paved widths. City code Section 16.58.080 states the following:

Major and collector streets shall conform to the width assigned in the master plan wherever a subdivision falls in an area that is addressed in the master plan. Where a street has not been addressed within the master plan at the time the preliminary plat is submitted to the Planning Commission, streets shall be provided as follows:

- A. Residential streets shall have a minimum right-of-way of sixty (60) feet.
- B. Collector streets shall have a minimum right-of-way of either sixty-five (65) or seventy-two (72) feet, as determined by the Planning Commission.

- C. Secondary arterial streets shall have a minimum width of eighty-two and one-half (82-1/2) feet or as shown on the master plan, whichever is greater.
- D. Minimum width of paved roadway wherever curb and gutters are installed (lip to lip of curb) shall be as follows:
 - Residential streets: thirty-eight (38) feet;
 - Collector streets: forty-four (44) feet;
 - Secondary arterial streets: sixty (60) feet or conform to master plan, whichever is greater.

Federal Highway standard widths apply on the all roads that are part of the State highway system. Also, all federally funded roadways in the City and county must adhere to the same standards for widths and design.

5.2. Bicycles and Pedestrians

Bicycling and walking are viable modes of transportation and as such should be a consideration in development of all transportation project plans. Bicycles are typically used for two purposes, commuter travel and recreation, and are allowed on all State roads unless an alternate route is available. Bicycle commuters generally use the same corridors as automobiles and the bicycle is accommodated on the roadway. AASHTO guidelines recommend a minimum standard width for bicycle lanes of four feet, but many communities are using five feet, which is preferred by bicyclists. A painted bicycle lane, or adequate shoulder width that is free from debris, should be provided.



The TAC prioritizes the different projects for the TMP

Vernal plans to develop a bicycle and pedestrian route plan including UDOT general guidelines such as:

- Routes chosen connect local activity centers, including shopping areas and schools;
- Ensure that each school has a detailed Safe Routing Plan established by their School Community Council, as required by state law;
- Routes should follow common travel paths;
- Commuting bicyclists should be accommodated on arterial streets to minimize delay and offer continuity for longer trips, and;
- Preference should be given to lower volume roadways instead of higher volume roadways for on-street bike routes, especially for routes used by school-age children;
- Sidewalks should be free of obstacles, such as utility poles, trees and bushes, and should be ADA compliant, making them wide enough to accommodate all pedestrian traffic. To ensure consistency throughout Vernal, adherence to UDOT's approved standard for sidewalks is recommended.

One way that communities can improve the sidewalks, and even increase the number of them, is through the Transportation Enhancement Funds. The Transportation Enhancement Funds are administered by UDOT and can be used for bicycle and pedestrian projects.

A Trails Committee would help to develop a trails system within the area. The committee should address the need for connectivity of the trails system as an overall goal. This effort is in agreement with the Governor's Legacy Trails Initiative, as referenced in the UDOT Long Range Plan, which identifies and recommends the 47-mile, unpaved Vernal Canal trail. For proper signage of the trails, refer to the Manual on Traffic Control Devices (MUTCD). An estimated cost for a 12 foot wide paved trail, including right-of-way, is approximately \$20.00 per linear foot. A gravel trail with right-of-way would cost approximately \$12.00 per linear foot.

5.3. Enhancements Program

UDOT's Transportation Enhancement program provides opportunities to use federal dollars to enhance the cultural and environmental value of the transportation system. The criteria for these grant applications appear on UDOT's web site, www.udot.utah.gov.

Vernal City intends to submit an application for the upcoming Transportation Enhancements Funding Cycle for the expansion of the beautification effort entitled, "Highway 30 Floral Enhancement Project" described further in section 2.2 on page 9 above. This effort will include 60 additional decorative streetlights as well as over 300 additional planters and flower baskets.

5.4. Transportation Corridor Preservation

Transportation Corridor Preservation will be introduced as a method of helping the City's Transportation Master Plan. This section will define what Corridor Preservation is and ways to use it to help the Transportation Master Plan succeed for the City.

5.4.1. Definition

Transportation Corridor Preservation is the reserving of land for use in building roadways that will function now and can be expanded at a later date. It is a planning tool that will reduce future hardships on the public and the City. The land along the corridor is protected for building the roadway and maintaining the right-of-way for future expansion by a variety of methods, some of which will be discussed here.

5.4.2. Corridor Preservation Techniques

There are three main ways that a transportation corridor can be preserved. The three ways are acquisition, police powers, and voluntary agreements and government inducements. Under each of these are many sub-categories. The main methods will be discussed here, with a listing of some of the sub-categories.

5.4.2.1.Acquisition

One way to preserve a transportation corridor is to acquire the property outright. The property acquired can be developed or undeveloped. When the City is able to acquire undeveloped property, the City has the ability to build without greatly impacting the public. On the other hand, acquiring developed land can be very expensive and can create a negative image for the City. Acquisition of land should be the last resort in any of the cases for Transportation Corridor Preservation. The following is a list of some ways that land can be acquired.

- Development Easements
- Public Land Exchanges
- Private Land Trusts
- Advance Purchase and Eminent Domain
- Hardship Acquisition
- Purchase Options

5.4.2.2.Exercise of Police Powers

Police powers are those ordinances that are enacted by a municipality in order to control some of the aspects of the community. There are ordinances that can be helpful in preserving corridors for the Transportation Master Plan. Many of the ordinances that can be used for corridor preservation are for future developments in the community. These can be controversial, but can be initially less intrusive.

- Impact Fees and Exactions
- Setback Ordinances
- Official Maps or Maps of Reservation
- Adequate Public Facilities and Concurrency Requirements

5.4.2.3.Voluntary Agreements and Governmental Inducements

Voluntary agreements and governmental inducements rely on the good will of both the developers and the municipality. Many times it is a give and take situation where both parties could benefit in the end. The developer will likely have a better-developed area and the municipality will be able to preserve the corridor for transportation in and around the development. Listed below are some of the voluntary agreements and governmental inducements that can be used in order to preserve transportation corridors in the City limits.

- Voluntary Platting
- Transfer of Development Rights
- Tax Abatement
- Agricultural Zoning

Each of these methods has its place, but there is an order that any government should try to use. Voluntary agreements and government inducements should be used, if possible, before any police powers are used. Police powers should be tried before acquisition is sought. This

last technique to be used should always be the last resort in any corridor preservation. The Utah Department of Transportation has developed a toolkit to aid in corridor preservation techniques. This toolkit contains references to Utah code and examples of how the techniques have been used in the past.